

TENDER DOCUMENT

TENDER SPECIFICATION No : **BAP : FES: PG TEST 2018** dated : **30 01 2018**

NAME OF WORK:

Conducting Performance Guarantee Test in Electrostatic Precipitator (ESP) at various Power Plants as per laid down procedure. The objective is to determine the collection efficiency, pressure drop and auxiliary Power consumption of Electrostatic Precipitator. The collection efficiency to be calculated based on the dust concentrations at the inlet and outlet of precipitator. The scope of this work involves (A) Measurement of parameters like flue gas flow rate, flue gas temperature, dust concentration at the inlet & outlet of electrostatic precipitator, corona / auxiliary power measurements. (B) Providing of skilled man power for the above scope of work.

Issued to: M/s.

PART – I (TECHNICAL BID)



FES DEPARTMENT

BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

BOILER AUXILIARIES PLANT

INDIRA GANDHI INDUSTRIAL COMPLEX

RANIPET – 632 406

BHARAT HEAVY ELECTRICALS LIMITED
BOILER AUXILIARIES PLANT
RANIPET- 632406.

FES DEPARTMENT

TENDER SPECIFICATION NO. : **BAP: FES: PG TEST 2018**

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BHARAT HEAVY ELECTRICALS LIMITED
BOILER AUXILIARIES PLANT, RANIPET- 632406.
FES DEPARTMENT

NOTICE INVITING TENDER

Sealed Tenders in TWO PARTS are invited from experienced bidders meeting Qualification Requirements (QR) for the work mentioned below. Points relevant to the tender are mentioned below and are to be complied with.

- 1 TENDER SPECIFICATION NO. : **BAP : FES: PG TEST 2018 Dated 30.01.2018**
 - 2 **NAME OF THE WORK** : Conducting Performance Guarantee Test in Electrostatic Precipitator (ESP) at various Power Plants as per laid down procedure. The objective is to determine the collection efficiency, pressure drop and auxiliary Power consumption of Electrostatic Precipitator. The collection efficiency to be calculated based on the dust concentrations at the inlet and outlet of precipitator. The scope of this work involves (A) Measurement of parameters like flue gas flow rate, flue gas temperature, dust concentration at the inlet & outlet of electrostatic precipitator, corona / auxiliary power measurements. (B) Providing of skilled man power for the above scope of work.
 - 3 **EARNEST MONEY DEPOSIT** : **Rs. 1,53,000/-** (Rupees One lakh fifty three thousand only)
 - 4 Tender specification documents : Attached.
 - 5 DUE DATE AND TIME FOR SUBMISSION OF OFFER : **22.02.2018 14.00 Hrs.**
 - 6 DATE & TIME OF OPENING OF TECHNICAL BID : **22.02.2018 14.30 Hrs.**
-

- 7 **EARNEST MONEY DEPOSIT (EMD)** : EVERY TENDER MUST BE ACCOMPANIED BY THE PRESCRIBED AMOUNT OF EARNEST MONEY DEPOSIT.

a. Payment of EMD thru' Online

The steps to make online payment is detailed as below:

1. Visit
 - a. <https://www.onlinesbi.com/prelogin/icollecthome.htm>
2. Click 'Proceed' button
3. Select '**Tamilnadu**' in the drop down menu under 'State of Corporate/Institution *'
4. Select '**PSU-PUBLIC SECTOR UNDERTAKING**' in the next drop down menu under "Type of Corporate/Institution"
5. Click 'Go' button
6. Select '**BHEL BAP RANIPET**' in the drop down menu under "PSU-PUBLIC SECTOR UNDERTAKING"
7. Click 'Submit' Button
8. Select '**EMD**' in the drop down menu under 'Select Payment Category'
9. Now Fill in the required details and ensure correctness of data filled. Ensure that you are entering correct enquiry/tender number and other details correctly.
10. Make payment for EMD as required in tender after entering the details and enclose copy of receipt along with tender documents. Scan and upload the receipt document in case of tender under e- Procurement mode.

(or)

- b. EARNEST MONEY DEPOSIT (EMD) shall be remitted along with the tender in the form of Banker's Cheque or Pay order or DEMAND DRAFT drawn in favour of BHARAT HEAVY ELECTRICALS LIMITED payable at RANIPET.**

EMD in the form of bank guarantee / fixed deposit receipt or in any other form **will not be accepted**, except by cash as detailed in Cl. 1.4.1.2 (Page 25)

- 8 **Tender that is not accompanied by the requisite EMD amount is liable to be summarily rejected.**
- 9 Tenderers whose technical bids are found acceptable to BHEL shall be intimated separately about the status of their offers. Date of price bid opening shall be intimated to the qualified bidders only.
- 10 BHEL will not take any responsibility for delay/loss of documents or correspondence sent by courier/post.
- 11 BHEL reserves the right to accept or reject any or all tenders without assigning any reasons whatsoever.
- 12 All corrigenda, addenda, amendments, clarifications, change in tender opening date etc. to tender specification will be intimated hosted only in the BHEL website at least 5 days in advance from date of tender opening for compliance.
- 13 BHEL reserves the right to reject any tender on the basis of unsatisfactory performance of the bidder in any on going job or any similar job in the past.
- 14 The bidders to note that possession of provident Fund (PF) code is not a pre-condition for participation in the tender. However, the successful bidder should ensure to get the PF code for the employees engaged for this work.
- 15 **Qualification Requirements: Refer to Technical Specification for QR, The bidder has to submit supporting documents for QR as called for in Clause 2.10 (Page 13) of Commercial Terms and condition.**
- 16 **Seeking clarification on Tender Specification:** Clarifications on tender specification if any may be sought by the bidders so as to reach this office at least 3 days before the last date for tender submission. BHEL shall not be responsible for receipt of queries after the due date for seeking of clarification due to postal delay.
- 17 BHEL may decide holding a pre-bid conference (PBC) with any /all intending bidders. On such communication from BHEL, the bidder shall ensure participation in the same at the appointed time, date and place as may be decided by BHEL. Any clarification/query received after the pre-bid conference shall not be entertained.
- 18 All the information as called for in the various clauses and annexure of tender specification should be furnished. Please refer to the check list. The details so furnished should be complete in all respects and as per the formats prescribed in the Tender specification (Statutory requirement of Contract). The bidder may have to produce original documents for verification, if so decided by BHEL.
- 19 Offers received with any deviation or without relevant information are liable to be rejected.
- 20 Price bids received in any form other than prescribed in Part-II (PRICE BID) are liable to be rejected.

- 21 The tender offer should be kept valid for 6 Months from the date of bid opening for acceptance by BHEL. No unsolicited revision in the tender offer shall be entertained after opening of tenders and till expiry of the validity period.
 - 22 **LIQUIDATED DAMAGES / Penalty:** Refer to Commercial Terms and Conditions Clause 2.5 (Page 12)
 - 23 **Discrepancy in Quoted Rates :** Refer to General conditions of contract Section I - Clause 1.1.9 (Page 23)
 - 24 **Reverse Action :** Will be conducted. Refer to general terms and conditions of RA (Page no : 37)
 - 25 **Scope Split :** Refer to Commercial terms and conditions clause 2.17 (Page 14)
 - 26 **Contract Period :** Two Years
-

**BHARAT HEAVY ELECTRICALS LIMITED
BOILER AUXILIARIES PLANT
RANIPET – 632 406**

FES DEPARTMENT

SPECIAL INSTRUCTIONS TO TENDERER

1. This Booklet consists of the scope and bill of quantities of the entire work etc.
2. The Tenderers are requested to go through the instructions contained in the documents attached fully and then quote in the Rate Schedule attached.
3. Tenderers are advised to go through the General conditions of contract, special conditions of the contract, tender specifications etc. and fully understand the scope of work before quoting. Any doubt in the documents should be got clarified from FES Department of BHEL, Ranipet before submitting their offer.
4. Tenderers shall note that all the required Instrument (duly calibrated) will be provided by BHEL.
5. **No advance payment towards mobilization of site operation** or for any other purpose will be made by BHEL. The payment for work will be made strictly as per payment terms in the tender specification.
6. **The Tender Documents should be submitted duly signed and stamped in all the pages** of the Tender Specification, General conditions, special conditions, Annexures etc. by the Tenderer.
7. **All the resources required for completion of work has to be mobilized within 5 days from the date of intimation given by FES/BHEL through email and the scope of work in Conducting of Test is to be completed within the specified period.**
8. The undersigned is not bound to accept the lowest or any tender and will have the right to reject any or all the Tenders without assigning any reason whatsoever.
9. Approval, if any, required from statutory authorities like Labor Commissioner, Electricity Board, etc., should be obtained by the tenderer on his own cost and risk.
10. These Tender Documents are not transferable.
11. Tender with all the required documents should be submitted so as to reach as per schedule given in the notice inviting tender and duly addressed to :

**ADDL. GENERAL MANAGER,
FES DEPARTMENT,
BHARAT HEAVY ELECTRICALS LIMITED,
BOILER AUXILIARIES PLANT,
RANIPET – 632 406.
Phone No.:04172 - 241242 / 284318
E-mail: srkrishna@bhel.in**

BHARAT HEAVY ELECTRICALS LIMITED
BOILER AUXILIARIES PLANT
RANIPET- 632406.
FES DEPARTMENT

PROCEDURE FOR SUBMISSION OF SEALED TENDERS

THE TENDERER MUST SUBMIT THEIR TENDER IN TWO PARTS IN SEPARATE SEALED COVERS PROMINENTLY SUPERSCRIBED AS PART-I TECHNICAL BID AND PART-II PRICE BID AND ALSO INDICATING ON EACH OF THE COVERS THE TENDER SPECIFICATION NUMBER AND DUE DATE AND TIME OF SUBMISSION AS MENTIONED IN THE TENDER NOTICE..

PART-I (TECHNICAL BID) COVER-I :

Excepting Rate Schedule, all other documents , data sheets, EMD, Un-priced copy of the Price Bid and details (duly signed on all pages with seal) called for in the specification shall be enclosed in Part-I “Technical Bid”.

PART-II (PRICE BID) COVER-II :

All indications of price shall be given in this part-II “Price Bid” only.

THESE TWO COVERS I & II (PART-I AND PART-II) SHALL TOGETHER BE ENCLOSED IN A THIRD ENVELOPE (COVER-III) **ALONG WITH REQUISITE EMD (SEPARATE COVER SUPERSCRIBED AS EMD)** AS MENTIONED IN THE NOTICE INVITING TENDER AND THIS SEALED COVER SHALL BE SUPERSCRIBED AND SUBMITTED TO AGM/FES AT THE ADDRESS GIVEN IN “Special Instructions to Tenderers” ON OR BEFORE THE DUE DATE.

TENDER SPECIFICATION NO. : BAP : FES: PG TEST 2018**PROJECT INFORMATION**

1	Name of The Power Plant	Projects located across India. The indicative list of projects is attached. BHEL may add /delete projects as per the requirement.
2	Place of the Power Plant	
3	Environment	Normal Thermal Power Plant conditions
4	Remarks	Before offering his/her/their tender, the Tenderer has to thoroughly acquaint with the site conditions in general in all power plants with reference to Operating procedures inside the plant, HSE rules prevailing , site interference problems etc. No compensation or revision of rates will be entertained at a later date for not having proper knowledge of the site conditions.

TECHNICAL & COMMERCIAL TERMS AND CONDITIONS

I - TECHNICAL SPECIFICATION

Ref: BAP:FES:PGTEST:TS

Page: 01 of 11

Appendix-I

1.1 Introduction

ESP Performance guarantee test is to be conducted In Electro Static Precipitators (ESP) in various Thermal Power Plants across India. Procedure for conduct of test is approved by BHEL's customers for the respective projects. (Sample procedure is attached). The collection efficiency is calculated based on the dust concentrations at the inlet and outlet of precipitator.

The objective of the performance guarantee test is to determine the collection efficiency, pressure drop and auxiliary Power consumption of Electrostatic Precipitator as per procedure.

This work involves (A) measurement of parameters like flue gas flow rate, flue gas temperature, dust concentration at the inlet & outlet of electrostatic precipitator, corona / auxiliary power measurements. (B) Providing of skilled man power for the above work and (C) Co-coordinating with the project in charges in accomplishment of the work.

1.2 Scope:

- i. Measurement of gas flow, temperature, inlet and outlet dust concentrations for computing of efficiency of ESP.
- ii. Measurement of corona / auxiliary power.

A typical 500 MW and above unit ESP consists of maximum 6 Passes (in most cases 4 passes) with each pass having 2 inlet ducts & 2 outlet ducts. Tests are normally conducted in each ESP separately with 4 sets of instruments simultaneously. (2 each at inlet and outlet).

A typical 270 MW and below unit ESP consists of maximum 2 individual passes with each pass having 2 inlet ducts & 2 outlet ducts. Tests are normally conducted in each ESP separately with 2 sets of instruments simultaneously (1 each at inlet and outlet).

Following are the brief steps involved in the performance guarantee test.

- a) Checking of ESP field data, Physical verification of rapping system in both auto and manual mode and Verification of chocking of hoppers. Providing the verified data in the prescribed format to Engr.in Charge of BHEL for corrective action. Verification and ensuring corrective action taken.
- b) Inspection of all test location for approach, cleaning of test pockets, power supply, lighting arrangements.
- c) Verification of test kit as per packing list.
- d) Cleaning and Assembling of Pitot tubes, thermocouples, sampling probes and marking of points.
- e) Testing of instruments – Vacuum pumps, manometers, thermocouples, temperature indicators, and gas meters. Check all the hose connections and arrest leakages in the instruments.
- f) Initial and final weighing of thimbles (filters) in laboratory as indicated in the procedure booklet.
- g) Measurement of velocity, pressure and temperature using Pitot, Manometer & thermocouple at each of the test location (duct). Duct is divided into grid points as shown in the attached typical drawings. Typically the measurements should be done in 36 grid points in each location of inlet and outlet. Accurate measurement is essential to arrive at gas flow. All the readings are recorded in a prescribed log sheet in the presence of customer representative. Intermediate calculation will be done during the test for arriving at isokinetic sampling rates.
- h) Measurement of dust concentration: sampling probe along with Thimble Sampling trains are used to sample flue gas at each location in approximately 36 grid points for about 3 minutes in each point. Thimbles are fixed in the sampling probe to filter the dust present in the sampled gas.
- i) The test location is located approximately at 23-25 meter elevation. The testing locations are in the ducts which are in open atmosphere.
- j) Test may be required to be done by at night hours also and have to work up to 12-13 hrs., per day during the test period.
- k) Before leaving the site after completion (or) otherwise, all instruments to be properly cleaned, and accounted for all items. Also ensure proper working condition of test kit. Handing over of test kit with Packing list to BHEL Site office / Engr-in-charge of BHEL.

l) Typical inlet parameters is given below:

Rating	Gas flow in m ³ /Sec.,	Flue gas temperature in Deg C.	Dust concentration in gm/Nm ³ .
500 MW	800-900	120 -150	35-65
600 MW	900-1000	120 -150	45-50
700 MW	1000-1100	120 -150	50-55
800 MW	1000-1200	120 -150	50-55

Ambient temperature range: 27 Deg C to 45 Deg C

m) **Test duration:**

Approximate duration is given below:

Sl.	Activity	Appx. Duration	
		270 MW & below	500 MW & above
1.	Assembly of test kits & checking, test pocket opening etc.,	2 days	2 days
2.	Preparation of thimbles, heating in oven, weighing etc.,	1 day	1 days
3.	Trial test	2 days	2 days
4.	Test	4 days	4 days
5.	Weighing of thimbles, final minutes	1 day	1 days
Total		10 days	10 days

The period indicated is based on past experience only. However there may be delay or early completion possibilities depending on the site conditions like unit availability, full load operation, outages, number of PG Test in a unit as per contractual agreement with customer by BHEL (like PG Test with all fields in working condition, with (N-1) Field, two or three test etc., No additional charges will be applicable for the extended stay up to 3 days. Refer Payment terms for details.

1.3 Skills required by testing personnel

- a) Qualification: Minimum Graduate/ Diploma Engr. - 4 persons required for a typical 500 MW unit and above.
- b) Qualification: Minimum Graduate/ Diploma Engr. - 2 persons required for a typical 270 MW unit and below.
- c) Should familiarize themselves with US EPA Method 17 Standards for emission measurement.
Link : https://www.epa.gov/sites/production/files/2017-08/documents/method_17.pdf
- d) Should have experience to troubleshoot the kit problems like leakages, electrical connection, display settings, vacuum pump etc.,

1.4 BHEL Scope:

- a) Unskilled workers.
- b) Test instruments and its calibration.
- c) Consumables.
- d) Report preparation.

1.5 **The test procedure and readings ascertained is the property of BHEL and should not be used or divulged in any form of whatsoever in nature to anybody.**

II COMMERCIAL TERMS AND CONDITIONS

- 2.1 Project details:** ESP Units of 500 MW and above and 270 MW and below. The contractor should be in a position to depute the team to assigned site within 5 days from the date of communication.
- 2.2 Price:** The offer shall be submitted in two parts viz. 1. Technical and 2. Commercial.
- 2.2.1. Part (a):** Conductance of PG test considering deployment of testing team for 10 days for PG test of ESP Units 500MW and above, and 270 MW and below at project sites excluding journey days. The charges should also include boarding, lodging, local conveyance, Insurance and other incidentals for the testing team.
- 2.2.2 Part (b):** The charges for train / bus travel to & fro per trip, conveyance to reach destination, insurance, etc. that may be incurred by contractor and this cost should remain fixed irrespective of number days spent and project location. The rate has to be considered per trip only.
- 2.3 PAYMENT TERMS:** All payments for the works completed shall be paid based on bills raised by the contractor as per payment terms and certified by Engineer-in-Charge of BHEL. **Payment will be made within a period of 30 days from the date of submission of bills along with all the enclosures as called for by BHEL. Payment will be only through e-payment** (through electronic fund transfer (EFT) / RTGS) only after deducting Bank charges as per BHEL terms of payment indicated below.
- 2.4 Billing and payment:** The payment will be processed as given below:
The payment will be processed as given below:
- a).100% payment after completion of test and verification of all log sheets and documents for report preparation.
 - b). Income tax will be recovered as per rules.
 - C). GST will be reimbursed on producing proof of payment of GST.

Conditions for Part A Payment (Schedule 01A and 2A of price bid):

1. In case of stay at site is delayed beyond 3 days, for reasons not attributable to the contractor, additional payment is admissible at pro-rata basis for the period from 14th day, i.e. (Contracted rate (Part A) /10) x (N-13), where N=No. of days in which work is completed.
2. In case of completion of the test in the time period of 7 days to 10 days, the total Contracted value is admissible.
3. In case of completion of the test in the time period of 7 days to 10 days, the total Contracted value is admissible.
4. In case of the test is called off for the reason not attributable to contractor, 100% of Part A on pro-rata basis is admissible. The Clause (2) & (3) above is not applicable in this case. However Clause (1) as above is applicable

Conditions for Part B Payment (Schedule 01B & 02B of price bid):

5. In case of the test is completed (or) called off for the reason not attributable to contractor, 100% of Part B is admissible.
6. In case of more than one ESP unit PG test is completed / called off in a same project / locality (approximately 30KM range) in a single visit, the payment for one trip only under Part-B is admissible. Decision of BHEL will be binding.

However the delay shall not be attributable to the contractor such as: Unit not running, sudden outage, Coal shortage, heavy rains delaying the tests, any other law and order issue, and customer constraints etc., the same shall be certified by BHEL Official. Decision of BHEL will be binding on this.

2.5 LIQUIDATED DAMAGES & PENALTY

Intimation for mobilization will be given by BHEL 5 days in advance. In case of any delay in mobilizing the team beyond 5 days from the scheduled date BHEL has the right to claim compensation.

- a. Intimation regarding requirement of team will be communicated with notice period of 5 days through email. The contractor has to mobilize the requisite personnel at site. In case the contractor failed to mobilize it will attract a penalty of 10,000/- per day of delay
- b. Delay in completion of the work at the rate of 1% of the contract value per DAY of delay or part thereof (within the time frame indicated in the tender specification) if the delay is attributable to contractor.

The total amount (a & b as above) is subject to a ceiling of 10% of contract value for the unit for which test is done. (If one unit is being tested the rate applicable for the unit value only)

- 2.6 HEALTH, ENVIRONMENT AND SAFETY:** The tenderer shall acquire knowledge and adhere to prevailing rules and regulations pertaining to Health, Environment and Safety (HSE) procedures of respective power plants, project site rules, prevailing labour laws enforced by local authorities, labour regulations, movement of labour / vehicles inside the plant area, time keeping systems etc., in force and other local political conditions before submission of offer and during execution of the contract. **The test team shall have their own personal safety equipments like Helmet, Safety shoes, etc.**
- 2.7** The contractor shall comply with all State/Central Laws, Statutory Rules, Regulations etc. inclusive of those regarding Labour and Industrial Laws which are applicable from time to time and shall comply with the provision of the same Labour Legislation, Rules and Regulations framed under the provision of Employees' Provident Fund and Miscellaneous Provision Act 1952, ESI registration, Labour License etc.
- 2.8** The tenderer shall specify the **Provident Fund Code / ESI Number** allotted to their firm by the Provident Fund authorities for engagement of labour for this tendered **work or otherwise shall obtain PF Code/ESI No. from respective Authorities** before finalization of the tender.
- 2.9** The contractor also has to ensure that their personnel are adhering to all plant regulations of respective project and do not cause any harm to the plant.

2.10 Qualification requirement :

The bidders must satisfy the following Qualification criteria for participating in the tender:

- 1 Average annual Turnover shall be RS 19.5 Lakhs **during the last three years ending 31st March 2017** and the bidder should submit audited balance sheet, profit & loss account for the last three financial years (FY) ending on 31/03//2017 duly certified by chartered accountant /auditor.
- 2 Experience of having successfully completed **either of the following similar works during last 7 years ending 31.12 2017** (last day of month previous to the one in which tenders are invited) :

Work:

- Should have experience in conducting of ESP or Boiler or Turbine or coal mills PG Tests in coal based power plants.
Or
- Should have experience in carrying out particulate emission test at Chimneys or at ESP outlets confirming to EPA-17 or CPCB standards.
Or
- Should have working knowledge of ESPs and should have worked in the area of operation / commissioning / trouble shooting/ CFD analysis/ Flow modeling and testing of ESP.
Or
- Should have worked in the fields controls and instrumentation/ electrical packages in power plants with BHEL sites.
Or
- Should have done Over Hauling of ESP / Boiler / Boiler auxiliaries in power plants.

Value of work:

- One similar completed work as above costing not less than the amount equal to Rs: 4.0 Lakhs.
(OR)
- Two similar completed work as above costing not less than the amount equal to Rs:2.5 Lakhs
(OR)
- Three similar completed work as above costing not less than the amount equal to Rs:2.0 lakhs

Important Note: Tenderer shall not be involved in design, manufacture and supply of ESP and should give undertaking for the same. BHEL has the right to reject such firms.

2.10. 1. Supporting Documents for meeting qualification requirement:

- The copy of the PO bagged (within 7 Years) for the scope of work covered in clause 2.10 above
- Certificate/ Proof like protocol, MOM etc., for successful completion of the PG test, / OH/ commissioning/ Operation / trouble shooting / C&I / electrical etc.

BHEL will assess the qualification requirement and has the right to reject or admit any offer from contractor after evaluation.

2.11 Validity: The parties to quote for rate Schedules with a validity of 6 Months on Firm Price basis (no escalation is allowed). BHEL reserves the right to negotiate with L1 offered. In case the Bharat Heavy Electricals Limited calls for negotiations such negotiations shall not amount to cancellation or withdrawal of the original offer, which shall be binding on the bidders.

2.12 FIRM PRICE: The Contractor has to keep his quoted rates firm for the entire contractual period including total extended period, if any, and no claim for revision of rates or price escalation is allowed under any circumstances.

2.13 VARIATION IN QUANTUM OF WORK : The details of quantum of work are indicated in the rate schedule which is only approximate and is likely to vary to the extent required for the completion of the scope of work

- 2.14** BID EVALUATION: The offer submitted by bidders who meet the requisite Qualifying Requirements will be evaluated in two stages, namely Technical- Bid Evaluation and Price Bid Evaluation.
- 2.15** Bidders whose technical bids are found acceptable to BHEL shall be intimated separately about the status of their offers. Date of price bid opening shall be intimated to the qualified bidders only.
- 2.16** PRICE BID EVALUATION CRITERIA: The successful bid shall be based only on the total quoted value in the sealed "Price bid" or RA, as applicable. for each case.
- 2.17** **SPLITTING OF THE TENDER QTY:**
The tendered quantity will be split among TWO bidders in the ratio of 2:1 to L1 and L2 (or other bidder, in the order of ranking, who accept to the negotiated L1-rates).
- 2.18** EPF registration: Bidders should furnish the EPF code and registration details along with the bid. Bidders who have not registered and do not possess EPF code, if awarded the work, should immediately register and obtain the code.
- 2.19** 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" as on floating of tender (date of advertisement)
- 2.20** **GST applicable for the tender :**

Registration & GST Rate

1. Bidder should indicate GSTIN No. (Copy of GST registration to be enclosed) and PAN No. (copy of PAN to be enclosed).
2. Tender will be considered/ accepted, if & only if the vendor has a valid GST Registration No.
3. Central Tax/ State Tax/ Integrated Tax/ Union Territory tax to be quoted as extra in %.
4. Bidders to ensure correct applicability of Central Tax/ State Tax/ Integrated Tax/ Union Territory tax based on the Inter / Intra state movement Supply of goods and provision services or both.

Invoicing & Payment

5. The Tax Invoice for supply of Goods & Services should be raised as per the provision of GST Act & Rules and must compulsorily mention the following :-
 - a. BHEL-RANIPET GSTIN: 33AAACB4146P2ZL
 - b. HSN Code or Service Accounting Code for supply of goods or services.
 - c. Name & address of supplier
 - d. GSTIN of Supplier
 - e. Consecutive Serial Number & date of issue
 - f. Description of goods or services
 - g. Total value of supply of goods or services
 - h. Taxable value of supply of goods or services
 - i. Tax Rate – Central Tax & State Tax or Integrated Tax, Cess
 - j. Amount of Tax charged
 - k. Place of supply/ Service Rendered
 - l. Address of delivery if different from place of supply
 - m. Signature of authorized signatory

6. Reimbursement of GST to the vendor is contingent upon complying with the following condition by the service provider:-
 - i. Uploading the onward GST Return (**GSTR-1**) in GSTN Network portal within the statutory time period.
 - ii. Discharging the GST tax liability to the Government.
 - iii. Submission of Tax Invoice to BHEL.
 - iv. Submission of proof of payment of GST to BHEL.
 - v. Availment of Input Tax Credit by BHEL.

Input Tax Credit

7. In case GST credit is delayed/ denied to BHEL, due to non/delayed receipt of goods and/or services and/or tax invoice or expiry of timeline prescribed in GST Law for availing such ITC, or any other reason not attributable to BHEL, GST amount shall be recoverable from Vendor along with interest & penalty levied/ leviable.
8. In case vendor delays declaring such invoice in his return and GST credit availed by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from vendor/contractor along with interest & penalty levied/ leviable on BHEL.
9. In case of discrepancy in the data uploaded by supplier in the GSTN portal or in case of any incomplete work/service, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note (details to be uploaded in GSTN portal).
10. For any such delay in availing of tax credit for reasons attributable to vendor (as mentioned above), interest as per the GST Act & Rules, along with penalty, if any will be deducted for the delayed period i.e. from the month of receipt till the month tax credit is availed, from the running bills.

Penalty for Non-compliance of GST Act

11. Penalty amount so determined along with GST if applicable thereon shall be recovered from the contractor.

Other Provison

12. Any reduction in rate of Tax on any supply of goods or services or the benefit of input tax credit shall be passed on to the recipient by way of commensurate reduction in prices.
13. The agency should quote the applicable taxes and duties in the technical bid (part-A) as well as in price bid (part-B).
14. All the terms & conditions of the contract with respect to Taxes & Duties are subject to the new taxation laws introduced from time to time (e.g., GST). The terms & conditions will be modified in accordance with the provisions of new laws (e.g., GST).
15. The Prices quoted above must be inclusive of all taxes and duties and exclusive of GST, which will be payable extra as per applicable rules and subject to Submission of documentary evidence.

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Appendix-I

- 2.21** The tenderer has to furnish information called for in the APPENDIX-I & II attached with this booklet. The details pertaining to the Bank Accounts where proceeds will be transferred through BHEL's Banker is to be furnished.
- 2.22** Copies of EPF remittance challans, ESI / Insurance remittances, etc of the workers pertaining to the site of work and period applicable shall be attached to every bill submitted, failing which bills will not be processed. Copies of half yearly and annual EPF returns for the workers have also to be submitted, if required.
- 2.23** RIGHTS OF BHEL IN CASE OF POOR PROGRESS OF WORK: To get the work done through other agencies at the risk and cost of the contractor, in the event of contractor's poor progress or inability to execute work, persistent disregard to instructions of BHEL, assignment transfer, subletting of contract without the permission of BHEL, non-fulfillment of any contractual obligation etc., and to recover compensation for such losses from the contractor including BHEL's supervision charges and overheads from the security deposit / other dues.
- 2.24** The manpower provided shall be capable of carrying out the assigned work to the satisfaction of BHEL. BHEL reserves the right to decide on the suitability of the personnel deployed and insist on removal of any employee found unsuitable for the work assigned. The contractor shall forthwith arrange for replacement.
- 2.25** THE CONTRACTOR SHALL STRICTLY ABIDE BY THE STATE AND CENTRAL LAWS, STATUTORY RULES, REGULATIONS ETC. AS INDICATED IN THE GCC AND OTHER SECTIONS OF THE SPECIAL CONDITIONS OF CONTRACT. IN ADDITION THE CONTRACTOR SHALL HAVE TO COMPLY WITH PROFESSIONAL TAX / AND PF /ESI/ LABOUR LICENCE REGULATIONS FOR ALL HIS EMPLOYEES / WORKMAN AS PER THE LOCAL AUTHORITIES / GOVERNING BODIES INSTRUCTIONS.
- 2.26** **Benefits to Micro, Small & Medium Enterprises (MSE) :** Guidelines of the Govt. of India shall be followed to provide benefits to MSE. MSE suppliers can avail the intended benefits only if they submit along with offer, attested copies of either EM-II certificate having deemed validity (Two years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or EM-II certificate along with CA certificate (Format enclosed as per Appendix – IV) applicable for the year, 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. Non submission of such documents will lead to consideration of their bids at par with other bidders and MSE status of such suppliers shall be shifted to Non MSE supplier till the supplier submits these documents
- 2.27** ORDER OF PRECEDENCE: In the event of any ambiguity or conflict between the clauses / statements in Tender Documents, the order of precedence shall be in the order below.
- a. Amendments / clarifications / corrigenda / errata etc. issued.
 - b. Notice Inviting Tender (NIT)
 - c. Price Bid
 - d. Technical Specification & scope of work
 - e. Special Conditions of Contract
 - f. General Conditions of Contract
 - g. Forms & Procedures
- 2.28** In the event of any conflict between requirements of a clause/s of this specification /documents/drawings/data sheets etc. and different standards / codes specified, the same is to be brought to the notice of BHEL before submission of offer, else BHEL's interpretation shall prevail.
- 2.29** Typographical error/missing pages/other errors in the tender documents noticed, must be brought to the knowledge of BHEL in writing before submission of offer, else BHEL's interpretation shall prevail.

INDICATIVE LIST OF PROJECTS

Project	SL NO	NO of Units	Project Name	Capacity
500 MW and above	1	2	SHREE SINGAJI TPP STAGE-1 2X600MW	500 MW and above
	2	2	JINDAL DERENG 2X600 MW	500 MW and above
	3	2	VINDHYACHAL STPP STAGE-IV-2X500 MW	500 MW and above
	4	2	JAYPEE NIGRIE 2X660 MW	500 MW and above
	5	1	BELLARY TPS STAGE-3 UNIT-3 1x700MW	500 MW and above
	6	2	MOUDA 2X660 MW	500 MW and above
	7	1	FARAKKA 500MW	500 MW and above
	8	3	PRAYAGRAJ STPP 3X660 MW BARA	500 MW and above
	9	2	NTPC BARH 2X660MW	500 MW and above
	10	1	CHANDRAPUR-STPS-2X500MW	500 MW and above
	11	1	NTECL-VALLUR TPP 1X500MW	500 MW and above
	12	2	SAGARDIGHI TPP 2X500 MW	500 MW and above
	13	1	HNPCL-VIZAG 2X520 MW	500 MW and above
	14	2	ARAVALI STPP 3X500MW	500 MW and above
	15	2	MARWA 1&2, 2 X500 MW	500 MW and above
	16	2	ANPARA D6 & 7, 2 X 500 MW	500 MW and above
	17	1	TUTICORIN 1&2, 2 X 500 MW	500 MW and above
	18	2	SCCL, SINGERENI 1 & 2, 2 X 600 MW	500 MW and above
	19	2	LALITPUR3X660 MW	500 MW and above
	20	2	YERMARAS 2X800 MW	500 MW and above
	21	1	RIHAND 3, 1X500 MW	500 MW and above
	22	3	KAHALGAON 3X500 MW	500 MW and above
	23	1	600MW JHABUA POWER LTD	500 MW and above
	24	1	DVC, BOKARO 1X500 MW	500 MW and above
	25	1	UUCHAHAR #6 1X500 MW	500 MW and above
	26	1	RIHAND 5, 1X500 MW	500 MW and above

Project	SL NO	NO of Units	Project Name	Capacity
270 MW and below	1	1	HINDALCO MAHAN- 6x150MW	270 MW and below
	2	2	BARAUNI TPS EXPANSION 2x250 MW	270 MW and below
	3	1	APNRL TPP UNIT-1 1X270MW JAMSHEDPUR	270 MW and below
	4	4	ADITYA ALUMINIUM CPP 6x150 MW	270 MW and below
	5	1	PARLI-TPS-UNIT-3 1X250 MW	270 MW and below
	6	5	NASIK TPP 5x270 MW OF IRL	270 MW and below
	8	2	GVK POWER GOVINDWAL-2X270 MW	270 MW and below
	9	2	NEYVELI 1 & 2, 2 X 250 MW	270 MW and below
	10	2	SIKKA EXTEN 3&4, 2X250 MW	270 MW and below
	11	2	BHAVNAGAR ENERGY, 2X250 MW	270 MW and below
	12	2	MUZZARFARPUR, 2X195 MW	270 MW and below
	13	2	SINTEX 1&2 INDL.,	270 MW and below
	14	3	BONGAIGAON 3X250 MW	270 MW and below
	15	4	NABINAGAR 4 X 250 MW	270 MW and below

Project	SL NO	NO of Units	Project Name	Capacity
R&M	1	1	Barauni#7	270 MW and below
	2	1	IB Valley#1	270 MW and below
	3	1	IB Valley#2	270 MW and below
	4	1	Korba#2	270 MW and below
	5	1	Korba#3	270 MW and below
	6	1	Korba#4 500 MW	500 MW and above
	7	1	Korba#5 500 MW	500 MW and above
	8	1	Obra#10	270 MW and below
	9	1	Obra#11	270 MW and below
	10	1	Obra#9	270 MW and below
	11	2	Talcher Kaniha 2X500 MW	500 MW and above
	12	1	Talcher#5	270 MW and below
	13	1	Unchahar#1	270 MW and below
	14	1	Wanakbori#1	270 MW and below
	15	1	Ukai#5	270 MW and below
	16	1	Korba#6 500 MW	500 MW and above
	17	2	Talcher#6 TTPS 110 MW	270 MW and below
	18	1	Koradi#6	270 MW and below
	19	1	Korba#1	270 MW and below
	20	1	Wanakbori#3	270 MW and below
	21	1	Barauni#6	270 MW and below
	22	6	Vindhyachal 6X200 MW	270 MW and below
	23	5	Singrauli 5X 200 MW	270 MW and below
	24	2	Singrauli 2X 500 MW	500 MW and above

TENDER DOCUMENT (TENDER SPECN No : BAP : FES: PG TEST 2018)**Un-price-Bid** to be submitted along with Part-I ie. Technical Bid

Name Of Work: (For Detailed Scope Of Work Please Refer The Tender Specification.)

***GST percentage alone to be indicated in the in the Un-Price-Bid**

NAME OF WORK: Conducting Performance Guarantee Test in Electrostatic Precipitator (ESP) of 500MW and above at various Power Plants as per laid down procedure. The objective is to determine the collection efficiency, pressure drop and auxiliary Power consumption of Electrostatic Precipitator. The collection efficiency to be calculated based on the dust concentrations at the inlet and outlet of precipitator. The scope of this work involves (A) Measurement of parameters like flue gas flow rate, flue gas temperature, dust concentration at the inlet & outlet of electrostatic precipitator, corona / auxiliary power measurements. (B) Providing of skilled man power for the above scope of work.

EXECUTION PERIOD : Two Years from date of LOI / CONTRACT

Schedule No	Description	Unit	Quantity	% Weightage of each item w.r.to Sub Total (A) (excluding GST)
01 A (PART A)	Preparation, trial and conductance of ESP PG test of ESP capacity 500 MW and above having 6 Passes maximum Passes and 2 bus section per pass. Including, manpower, boarding, lodging, local conveyance and other incidentals of test crew comprising of 4 Engr./ Diploma Holder for 10 days	No	24	90.3495%
01 B (PART B)	To & Fro Conveyance for conducting ESP PG test across India for 500MW & above for four persons	No	24	9.6505%
	Total weightage (w.r.t. Sub total Excl. GST)			100%
I	Sub total Excl. GST (A)			QUOTED
II	GST Amount @ _____% * (B) Please quote applicable GST % only in the above column.			QUOTED
III	Total Value incl. GST (C) = (A) + (B)			QUOTED

SIGNATURE OF THE CONTRACTOR WITH SEAL

TENDER DOCUMENT (TENDER SPECN No : BAP : FES: PG TEST 2018)**Un-price-Bid** to be submitted along with Part-I ie. Technical Bid

Name Of Work: (For Detailed Scope Of Work Please Refer The Tender Specification.)

***GST percentage alone to be indicated in the in the Un-Price-Bid**

NAME OF WORK: Conducting Performance Guarantee Test in Electrostatic Precipitator (ESP) of **270 MW and below** at various Power Plants as per laid down procedure. The objective is to determine the collection efficiency, pressure drop and auxiliary Power consumption of Electrostatic Precipitator. The collection efficiency to be calculated based on the dust concentrations at the inlet and outlet of precipitator. The scope of this work involves (A) Measurement of parameters like flue gas flow rate, flue gas temperature, dust concentration at the inlet & outlet of electrostatic precipitator, corona / auxiliary power measurements. (B) Providing of skilled man power for the above scope of work.

EXECUTION PERIOD : Two Years from date of LOI / CONTRACT

Schedule	Description	Unit	Quantity	% Weightage of each item w.r.to Sub Total (A) (excluding GST)
2A (Part A)	Preparation, trial and Conductance of ESP PG test of ESP capacity 270 MW and below having maximum 2 Passes and 2 bus section per pass. Including, manpower, boarding, lodging, local conveyance and other incidentals of test crew comprising of 2 Engr./ Diploma Holder for 10 days	No	30	90.3495%
2B (Part B)	To & Fro Conveyance for conducting ESP PG test across India for 270 MW and above for two persons	No	30	9.6505%
	Total Weightage (w.r.t. Sub total Excl. GST)			100%
	Sub total Excl. GST (A)			QUOTED
	GST Amount @ _____% * (B) Please quote applicable GST % only in the above column.			QUOTED
	Total Value including GST (C) = (A) + (B)			QUOTED

**SIGNATURE OF THE
CONTRACTOR WITH SEAL**



Bharat Heavy Electricals Limited
Boiler Auxiliaries Plant, Ranipet –632 406
FIELD ENGG. SERVICES DEPARTMENT

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GENERAL CONDITIONS OF CONTRACT

FOR

WORKS

(SECTION – I & II)

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FIELD ENGG. SERVICES DEPARTMENT


BHARAT HEAVY ELECTRICALS LIMITED


(A Government of India Undertaking)


BOILER AUXILIARIES PLANT


INDIRA GANDHI INDUSTRIAL COMPLEX


RANIPET – 632 406


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<p>1. GENERAL INSTRUCTIONS TO BIDDERS</p> <p>1.1. DESPATCH INSTRUCTIONS:</p> <p>1.1.1. This tender specification as a whole, duly furnishing all the details required and other documents as required in the following pages, shall be duly signed and sent in a sealed cover duly super scribing the name of work as given in the tender notice.</p> <p>1.1.2. The tender shall be addressed to Officer inviting tender as indicated in the tender notice.</p> <p>1.1.3. Tenders submitted by post shall be sent by “REGISTERED POST WITH ACKNOWLEDGEMENT DUE” and shall be posted with the due allowance for any postal delay. The tenders received after the due date and time of opening are liable to be rejected. Telegraphic offers and offers received by telex may not be considered.</p> <p>1.1.4. Tenders shall be opened by authorized officer of BHEL at his office at the time and date as specified in the tender notice in the presence of such of those bidders or their authorized representatives who may be present.</p> <p>1.1.5. The Tenders shall closely pursue all the clauses, specifications and drawings indicated in the tender documents before quoting. Should the bidder have any doubt in the meanings of any portion of the tender specification or find discrepancies or omission in the drawings or the tender documents issued are in complete or shall require clarification on any of the technical aspect, scope of work etc., he shall at once contact the authority inviting the tender for clarification before the submission of the tender.</p> <p>1.1.6. Before tendering, the bidders are advised to inspect the site of work and the environments and be well acquainted with the actual working and other prevalent conditions, facilities available, position of material and labour. No claim will be entertained later, on the ground of lack of knowledge.</p> <p>1.1.7. Bidder must fill up all the schedules and furnish all the required information as per the instructions given in various sections of the tender specification. Each and every page of the Tender Specification must be signed and submitted along with the offers by the bidder in token of complete acceptance thereof. The information furnished shall be complete by itself.</p> <p>1.1.8. The bidders shall quote the rates in English language and international numerals. These rates shall be entered in figures as well as in words.</p> <p>1.1.9. Discrepancy in Quoted Rates :</p> <p>1.1.9.1. If, in the price structure quoted, there is a discrepancy between the Unit rate quoted and the Total Price (which is obtained by multiplying the unit price by the quantity) due to arithmetical errors, the Unit rate quoted will be considered valid and the Total price will be corrected accordingly, unless in the opinion of BHEL there is an obvious misplacement of decimal point in the unit price. In which case the total price as quoted shall govern and the unit price corrected accordingly.</p> <p>1.1.9.2. If there is an error in total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected.</p> <p>1.1.9.3. If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (1.1.12.1) and (1.1.12.2) above.</p> <p>1.1.9.4. If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date before which the bidder has to send their acceptance on the above lines. If the bidder does not agree to the decision of BHEL, the bid is liable to be ignored.</p> <p>1.1.10. For the purpose of the tender, the metric system of units shall be used.</p> <p>1.1.11. All entries in the tender shall either be typed or be written in ink. Erasers and overwriting are not permitted and may render such tenders liable to summary rejection. All cancellations and insertions shall be duly attested by the bidder.</p> <p>1.2. QUALIFICATION OF BIDDERS: Only bidders who have previous experience in the work of this nature and description detailed in this tender specification are expected to quote for this work duly submitting details of experience along with the offer. Offers from bidders who do not have proven and established experience in the field are not likely to be considered.</p>		


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1.3. DATA TO BE ENCLOSED: Full information shall be given by the bidder in respect of the following. Non- submission of these information may lead to rejection of the offer.		
1.3.1. FINANCIAL STATUS: A certificate from Scheduled Bank to prove his financial capacity to undertake the work duly indicating financial limits the bidder enjoys or solvency certificate from the concerned Government authority. Information required in Annexure A (pl.ref. Page 09 of 11 of statutory Requirement) shall be furnished by the bidder along with the offer.		
1.3.2. INCOME TAX CERTIFICATE: A certificate of Income Tax clearance (A copy of the audited Balance Sheet, Profit and Loss Account & Income Tax return -filed for the last Three years to be submitted) from the appropriate authority in the forms prescribed there for indicating annual turnover and the Sales Tax clearance certificate from the appropriate authorities as prescribed by the concerned state government, if any. These certificates shall be valid for one year from the date of issue or for the period prescribed therein for all tenders submitted during the period.		
1.3.3. PREVIOUS EXPERIENCE: A statement giving particulars duly supported by documentary evidence of the various services rendered for each similar work by the bidder indicating the particulars, value of each work, the site location, the duration, date of completion, a list of site locations and particulars and value of various services that are under progress. Information required in Annexure –BI & BII shall be furnished by the bidders along with the offer.		
1.3.4. ORGANISATION CHART: The Organisation pattern that is presently available with the bidder and that will be employed by the bidder for this work shall be furnished.		
1.3.5. An attested copy of the Power of Attorney, in case the tender is signed by an individual other than the sole proprietor, shall also be attached. (If it is a Company or Firm, etc., Director/Managing Partner as the case may be is required to sign)		
1.3.6. IN CASE OF AN INDIVIDUAL: His full name, address and place and nature of business shall be indicated.		
1.3.7. IN CASE OF PARTNERSHIP FIRMS: The names of all the partners and their addresses be furnished along with a copy of the partnership deed/instrument of partnership duly certified by Notary Public shall be enclosed.		
1.3.8. IN CASE OF COMPANIES: Date and place of registration including date of commencement certificate in case of public companies (certified copies of Memorandum and Articles of Association are also to be furnished) are to be furnished.		
1.3.9. Nature of business carried on by the Company and the provisions of the Memorandum relating there of shall be furnished.		
1.3.10 Names and particulars including addresses of the Directors and their previous experiences shall be furnished.		
1.3.11 A list of tools and tackles that the bidder is having and those that will be used on this job shall be furnished.		
1.3.12 In addition to the above, the particulars required in various annexure shall also be furnished.		
EARNEST MONEY DEPOSIT:		
1.4.1. Every tender must be accompanied by the prescribed amount of Earnest Money Deposit in any one of the following forms.		


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<p>1.4.1.1. EMD shall be deposited in cash (as permissible under income tax act), Payorder or Demand Draft (payable at Ranipet in favour of “Bharat Heavy Electricals Ltd.,”) only. No other form of EMD remittance shall be acceptable to BHEL.</p> <p>1.4.1.2. In case of payment of EMD in the form of Cash, the amount should be remitted by the bidder to the Cash Office of Bharat Heavy Electricals Limited, BAP,Ranipet-632 406 during it's working hours and cash receipt issued shall be enclosed along with the tender.</p> <p>1.4.2. Tenders received without Earnest Money in full in the manner prescribed above are liable to be rejected.</p> <p>1.4.3. The Earnest Money Deposit of the successful tenders may be retained towards part of Security Deposit.</p> <p>1.4.4. In the case of unsuccessful bidders, the Earnest Money will be refunded to them within a reasonable time after finalisation of the tender.</p> <p>1.4.5. Earnest Money Deposit by the bidder will be forfeited as per tender documents if the bidder:</p> <p>1.4.5.1. Fails to communicate unqualified acceptance of Letter of Intent within 15 days of date of Letter of Intent.</p> <p>1.4.5.2. Does not commence the work within the period as per LOI/Contract. In case the LOI/Contract is silent in this regard then within fifteen days after award of contract.</p> <p>1.4.5.3. After opening of Tender, revokes/withdraws his tender within the validity period or revises/alters his earlier quoted rates/conditions.</p> <p>1.4.5.4. Fails to submit SD as indicated in the Letter of Intent.</p> <p>1.4.6. Earnest Money deposit shall not carry any interest.</p> <p>1.5. AUTHORISATION AND ATTESTATION:</p> <p>1.5.1. Tenders shall be signed by persons duly authorized /empowered to do so. Certified copies of such authority and relevant documents shall be submitted along with the tenders.</p> <p>1.6. VALIDITY OF OFFER: The rates in the Tender shall be kept open for acceptance for a minimum period of six months from the date of opening of tenders. In case the Bharat Heavy Electricals Limited calls for negotiations such negotiations shall not amount to cancellation or withdrawal of the original offer , which shall be binding on the bidders.</p> <p>1.7. EXECUTION OF CONTRACT: The successful bidder's responsibility under this contract commences from the date of issue of the Letter of Intent by Bharat Heavy Electricals Limited. The successful bidder shall be required to execute an agreement in the prescribed form (Annexure-D) with BHEL within a reasonable time after the acceptance of his tender and in any case before submitting the first bill for payment. The expenses for completion, stamping and registration of the agreement with prescribed authority, if necessary, shall be borne by the Contractor.</p> <p>1.8. SECURITY DEPOSIT:</p> <p>1.8.1. Upon acceptance of tender, the successful bidder within the time specified in the letter of intent must deposit the required amount of Security Deposit for satisfactory execution of work and shall not commence work under this contract before remitting security deposit except as directed by BHEL. The total amount of Security Deposit shall be 5 % of the contract value</p> <p>1.8.2. The Security Deposit may be furnished in any one of the following forms:-</p> <ol style="list-style-type: none"> 1. Cash (as permissible under the income tax act). 2. Local cheques of Scheduled Banks, (subject to realization) / Pay order, Demand Draft / Electronic fund transfer in favour of BHEL. 3. Securities available from Post Offices such as National saving Certificates, Kisan Vikas Patras etc. (Certificates should be held in the name of contractor furnishing the security and duly pledged in favour of BHEL and discharged on the back). 		


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<p>4. Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in the companies act. The FDR should be in the name of the contractor, account BHEL, duly discharged on the back.</p> <p>5. Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the companies act. The Bank Guarantee format should have the approval of BHEL (Annexure-E). The Bank Guarantee furnished towards Security Deposit should be kept valid by proper renewal till the expiry of 6 Months after the said work is actually completed.</p> <p>1.8.2.1. Security deposit can also be recovered at the rate of 10% from the running bills. However in such cases atleast 50% of the security deposit (as Bank Guarantee or Demand Draft) should be remitted before start of the work and balance 50% may be recovered from the running bills till the full Security Deposit is made up.</p> <p>1.8.2.2. EMD of the successful bidder may be converted and adjusted against the security deposit on specific request by the contractor.</p> <p>1.8.2.3. Acceptance of security deposit as per clause 1.8.3.4 and 1.8.3.6 above will be subject to hypothecation or endorsement on the documents in favour of BHEL. However, BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith.</p> <p>1.8.4. If the value of the work done at any time exceeds the accepted agreement value, the security Deposit shall be correspondingly enhanced and the extra Security Deposit shall be immediately deposited by the Contractor or recovered from payments due to him.</p> <p>1.8.5 Failure to deposit the Security Deposit within the stipulated time, may lead to forfeiture of Earnest Money and cancellation of the award of work.</p> <p>1.8.6 If any part of Security Deposit of the Contractor is held in the form of approved securities it shall be kept transferred in the name of Bharat Heavy Electricals Limited, Ranipet, in such a manner that the same can be realized fully without referring to the Contractor, BHEL shall not be responsible for any depreciation in the value of the Security while in BHEL's custody or for any loss of interest thereon.</p> <p>1.8.7 BHEL reserves the right to forfeiture of Security Deposit in addition to the other claims and penalties in the event of the Contractor's failure to fulfill any of the Contractual obligation including liquidation or bankruptcy of the contractor, non-payment of money payable by means of arbitration award in favour of BHEL or in the event of termination of Contract as per terms and conditions of Contract. BHEL reserves the right to set off the Security Deposit, against any claims of any other contracts with BHEL.</p> <p>1.8.8 RETURN OF SECURITY DEPOSIT: If the Contractor performs and completes the work in all respects to the entire satisfaction of BHEL and presents an absolute "No Demand Certificate" in the prescribed form (Annexure-F) and returns properties belonging to BHEL handed over, lent or hired by him for carrying out the said works, Security Deposit will be released to the Contractor after deducting all cost of expenses or other amounts that are to be paid to BHEL under this or other contracts entered into with the Contractor. It may be noted that in no case the Security Deposit shall be refunded/released prior to passing of final bill.</p> <p>1.9. REJECTION OF TENDER AND OTHER CONDITIONS</p> <p>1.9.1. The acceptance of Tender will rest solely with BHEL which does not bind itself to accept the lowest tender or any tender and reserves to itself full rights for the following without assigning any reasons whatsoever.</p> <p>1.9.1.1. To reject any or all of the bidders.</p> <p>1.9.1.2. To split up the work amongst two or more Bidders.</p> <p>1.9.1.3. To award the work in part.</p> <p>1.9.1.4. Either of the contingencies stated in (1.9.1.2) and (1.9.1.3) above to modify the time for completion suitably.</p>		

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<p>1.9.2. Conditional and Unwitnessed tenders, tenders containing absurd or unworkable rates and amounts and tenders which are incomplete and otherwise considered defective and tenders not in accordance with the tender conditions, specifications, etc., are liable to be rejected.</p> <p>1.9.3. If a bidder expires after the submission of his/her tender or after the acceptance of his/her tender, BHEL may at their discretion cancel such tender. If a partner of a firm expires the submission of the tender or after the acceptance of the tender, BHEL may cancel such tender at their discretion unless the firm retains its character.</p> <p>1.9.4. BHEL will not be bound by any power of Attorney granted by the bidder or by changes in the composition of the firm made subsequent to the execution of the Contract. They may, however recognize such power of Attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the contractor concerned.</p> <p>1.9.5. If the bidder deliberately gives wrong information in his tender, BHEL reserves the right to reject such tender at any stage or cancel the contract, if awarded. The Earnest Money/Security Deposit /any other money due shall also be forfeited.</p> <p>1.9.6. Canvassing in any form in connection with the tender is strictly prohibited and the tenders submitted by the contractors who resort to canvassing in any form are liable to rejection.</p> <p>1.9.7. Should a bidder or contractor or in the case of a firm or company of contractors one or more of its partners/share holders/Directors have a relation or relations employed in BHEL, the authority inviting tender shall be informed of the fact along with the offer, failing this BHEL may, at its sole discretion reject the tender or cancel the contract and forfeit the Earnest Money/Security Deposit.</p> <p>1.9.8. The successful bidder should not sub-contract the part or complete work detailed in the tender specification undertaken by him without written permission of BHEL. The bidder is solely responsible to BHEL for the work awarded to him.</p> <p>1.9.9. No deviation from the tender specification shall be acceptable to BHEL. Bidders shall confirm their unqualified acceptance of the terms and conditions by giving an undertaking to this effect in a separate letter as specified by BHEL.</p> <p>1.10. NO INTEREST shall be payable by BHEL on Earnest Money or Security Deposit, if applicable, or any money due to the Contractor by BHEL.</p> <p style="text-align: center;">-----</p>		

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<p>2.1. DEFINITION: The following terms shall have the meaning hereby assigned to them except where the context otherwise requires.</p> <p>2.1.1. BHEL or (B.H.E.L Ltd) shall mean Bharat Heavy Electricals Limited a Company registered under Indian Companies Act 1956, with its Registered Office at BHEL House, Siri fort, New Delhi 110 049 or its Authorised Officers or its Resident Engineer or other employees authorized to deal with any matters with which these persons are concerned on its behalf.</p> <p>2.1.2. “GENERAL MANAGER” shall mean the Officer in Administrative charges of contracting unit of BHEL.</p> <p>2.1.3. “ENGINEER” or “ENGINEER IN CHARGE” shall mean Engineer who is in-charge for the works referred in Erection Services. The term also includes PROJECT MANAGER, “RESIDENT MANAGER” “SITE ENGINEER “ “ RESIDENT MANAGER” and “ASSISTANT SITE ENGINEER “ of BHEL at the site as well as the Officers in-charge at Head Office.</p> <p>2.1.4. “SITE” shall mean the place or places at which the plants/equipments are to be erected and services are to be performed as per the specification of this contract.</p> <p>2.1.5. “CLIENTS OF BHEL” or “CUSTOMER” shall mean the project authorities to whom BHEL is supplying the equipments.</p> <p>2.1.6. “CONTRACTOR” shall mean the individual, firm or company who enters in to this contract with BHEL and shall include their executors, administrators, successor and permitted assignees.</p> <p>2.1.7. “CONTRACT” or “CONTRACT DOCUMENT” shall mean/and include the agreement or work order, the accepted appendices of rates, schedules, quantities, if any and general conditions of contract, the special conditions of contract, instructions to the bidders, the drawings, the technical specifications, the special specifications, if any, the tender documents and the Letter of Intent/Acceptance Letter issued by BHEL. Any conditions or terms stipulated by the contractor in the tender document or subsequent letters shall not form part of the contract unless specially accepted in writing by BHEL, in the Letter of intent and incorporated in the agreement.</p> <p>2.1.8. “GENERAL AND SPECIAL CONDITIONS OF CONTRACT” shall mean the “Instructions to Bidders and General and Special Conditions of Contract” pertaining to the work for which the bidders are called for.</p> <p>2.1.9. “TENDER SPECIFICATIONS” shall mean the “SPECIFIC CONDITIONS, Technical specifications, appendices, site informations and drawings” pertaining to the work in which the bidders are required to submit their offer, Individual specification number will be assigned to each tender specification..</p> <p>2.1.10. “TENDER DOCUMENTS” shall mean the General and Special Conditions of Contract(2.1.8) and tender specification(2.1.9).</p> <p>2.1.11. “LETTER OF INTENT” shall mean the intimation by a letter to the bidder that the tender has been accepted in accordance with provisions contained in that letter. The responsibility of the contractor commences from the date of issue of this letter and all the terms and conditions of contract are applicable from this date.</p> <p>2.1.12. “COMPLETION TIME” Shall mean the period by date specified in the acceptance of tender or date mutually agreed upon for handing over of the erected equipment/plant which are found acceptable by the Engineer being of required standard and conforming to the specifications of the contract.</p> <p>2.1.13. “PLANT” shall mean and cannot the entire assembly of the plant and equipments covered by the contract.</p> <p>2.1.14. “EQUIPMENT” shall mean all equipments, machinery, materials, structural, Electricals and other components of the plant covered by the contract.</p> <p>2.1.15. “TESTS” shall mean and include such test or tests to be carried out on the part of the contractor as are prescribed in the contract or considered necessary by BHEL in order to ascertain the quality, workmanship, performance and efficiency of the contract work or part thereof.</p> <p>2.1.16. “APPROVED” “DIRECTED” or “INSTRUCTED” shall mean approved, directed or instructed by BHEL.</p>		

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<p>2.1.17. “WORK OR CONTRACT WORK” shall mean and include supply of all categories of labour specified consumables, tools and tackles required for complete and satisfactory site transportation handling, stocking, storing, erecting, testing, and commissioning of the equipments to the entire satisfaction of BHEL.</p> <p>2.1.18. “SINGULAR AND PLURAL ETC” works carrying singular number shall also include plural and vice versa, where the context so required. Words importing the masculine gender shall be taken to include the feminine gender and words imparting persons shall include any company or association or body of individuals, whether incorporated or not.</p> <p>2.1.19. “HEADINGS” The headings in these general conditions are solely for the purpose of facilitating reference and shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.</p> <p>2.1.20. “MONTH” shall mean calendar month, unless specified otherwise in the tender.</p> <p>2.1.21. “WRITING” shall include any manuscript typewritten or printed statement under the signature of BHEL.</p> <p>2.2. LAW GOVERNING THE CONTRACT AND COURT JURISDICTION The contract shall be governed by the Law for the time being in force in the Republic of India, and shall be subject to the Jurisdiction of the courts having Jurisdiction over RANIPET (VELLORE Dist, Tamil Nadu).</p> <p>2.3. ISSUE OF NOTICE: The Contractor shall furnish to the BHEL ENGINEER the name, designation and address of his authorized agent and all complaints, notices, communication and reference shall be deemed to have been duly given to the contractor or his authorized agent or left or posted to the address of either the contractor or of his representative and shall be deemed to have been so give in the case of posting on the day on which they would have reached such address in the ordinary course of post or on which they were so delivered of / or left.</p> <p>2.4. USE OF LAND: No land belonging to BHEL or their customer under temporary possession of BHEL shall be occupied by the Contractor without the written permission of BHEL.</p> <p>2.5. COMMENCEMENT OF WORKS:</p> <p>2.5.1. The Contractor shall commence the works within the time indicated in the Letter of Intent from BHEL and shall proceed with the same with due expedition without delay.</p> <p>2.5.2. If the successful bidder fails to start the work within the stipulated time, BHEL, at his sole discretion will have the right to cancel the contract. His earnest money and/or Security Deposit with BHEL will stand forfeited without any further reference to him without prejudice to any and all of BHEL's other rights and remedies in this regard.</p> <p>2.5.3. All the works shall be carried out under the direction and to the satisfaction of BHEL.</p> <p>2.5.4. The erected/constructed plant or work performed under this contract shall be taken over when it has been completed in all respects and/or satisfactorily put in to operation at site.</p> <p>2.6. MODE OF PAYMENT AND MEASUREMENT OF THE WORK COMPLETED:</p> <p>2.6.1. All payments due to the contract shall be paid through E-PAYMENT (EFT / RTGS) only. The contractor has to furnish acceptance for e-payment, duly indicating the bank account details in the prescribed format.</p> <p>2.6.2. For Progress running bill payment: The contractor shall present detailed measurement working sheets, in quadruplicate, duly indicating all relevant details based on technical documents and connected drawings for work done during the month/period under various categories in line with terms of payment as per letter of intent. The basis of arriving at the quantities/weight shall be the relevant documents and drawings released by BHEL.</p>		

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<p>2.6.3. These measurement working sheets will be checked and vetted by BHEL Engineers and quantities and percentage eligible for payment under various groups shall be decided by BHEL engineers. The abstract of quantities and percentage so arrived based on the terms of payment shall be entered in Measurement Book and signed by both the parties.</p> <p>2.6.4. Based on the above quantity, contractor shall prepare the bills in prescribed pro-forma and work out the financial value. These will be entered in Measurement Book and signed by both the parties and paid duly effecting recoveries due.</p> <p>2.6.5. All recoveries due from the contractor for the month/period shall be effected in full from the corresponding running bills unless specific approval from the competent authorities is obtained otherwise.</p> <p>2.6.6. Measurement shall be restricted to that for which it is required to ascertain the financial liability of BHEL under this contract.</p> <p>2.6.7. The measurement shall be taken jointly by persons duly authorized on the part of BHEL and by the contractor.</p> <p>2.6.8. The contractor shall bear the expenditure involved, if any, in making the measurement. The contractor shall, without extra charges provide all the assistance with appliances and other things necessary for measurement.</p> <p>2.6.9. If, at any time due to any reason, whatsoever, it becomes necessary to re-measure the work done in full or in part, the expenses towards such re-measurements shall be borne by the contractor.</p> <p>2.6.10. Passing of measurement as per bills does not amount to acceptance of the completion of the work mentioned. Any left out work has to be completed if pointed out at a later date by BHEL.</p> <p>2.6.11. Final measurement bill shall be prepared in the final bill pro-forma prescribed for the purpose based on the certificate issued by BHEL Engineer that entire work as stipulated in the tender specification has been completed in all respects to the entire satisfaction of BHEL. Contractors shall give unqualified 'No Due' and 'No Demand' certificate. All the tools and tackles loaned to them should be returned in condition satisfactory to BHEL. Quantities/Weight erected shall be prepared and paid, within a reasonable time after completion of work. After payment of final bill, only guarantee obligation percentage shall remain unpaid which shall be released in accordance with clause 2.13. The final bill quantities and financial value shall also be entered in Measurement Book and signed by both the parties to the contract.</p> <p>2.7 RIGHTS OF BHEL</p> <p>BHEL reserves the following rights in respect of this contract without entitling the contractor for any compensation.</p> <p>2.7.1. To get the work done through other agency at the risk and cost of the Contractor, in the event of Contractor's poor progress, or inability to progress the work, persistent disregard in instruction of BHEL, assignment transfer, subletting of the contract without permission of BHEL, non fulfillment of any contractual obligation etc., and to recover compensation for such losses from the contractor including BHEL's supervision charges and overheads from Security Deposit / other dues.</p> <p>2.7.2. To withdraw any portion of work and/or to restrict/alter quantum of work as indicated and get it done through other agency and/or with departmental labor to suit BHEL's commitment to its customer or in case BHEL decides to advance the date of completion due to other emergency reasons/BHEL's obligation to its customer.</p> <p>2.7.3. To terminate the contract after due notice to cause forfeiting of Security Deposit and recover the loss sustained in getting the balance work done through other agencies in addition to liquidated damages in the event of :</p> <p>2.7.3.1. Contractor's continued poor progress.</p> <p>2.7.3.2. Withdrawal from or abandonment of the work before completion of the work.</p>		

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<p>2.7.3.3. Corrupt act of contractor.</p> <p>2.7.3.4. Insolvency of the contractor.</p> <p>2.7.3.5. Persistent disregards to the instructions of BHEL.</p> <p>2.7.3.6. Assignment transfer, sub-letting of the contract without BHEL's permission.</p> <p>2.7.3.7. Non-fulfillment of any contractual obligations.</p> <p>2.7.4. To recover any money due from the contractor from any money due to the contractor under this contract or any other contract or from the Security Deposit.</p> <p>2.7.5. To claim compensation for losses sustained including BHEL's supervision charges and overheads for completion on termination of contract and to impose penalty for delay in completion of the work at the rate of ½% of the contract value per week of delay or part thereof subject to a ceiling of 10% of contract value.</p> <p>2.7.6. To terminate the contract or to restrict the quantum of work and pay for the portion of work executed in case BHEL's contracts with their customers are terminated for any reason.</p> <p>2.7.7. To effect recovery from any amount due to the contractor under this or any other contractor in any other form the moneys BHEL is forced to pay to anybody, due to contractor's failure to fulfill any of his obligation.</p> <p>2.7.8. To restrict or increase the quantity and nature of work to suit the site requirements since the tender specification is based on preliminary documents and quantities furnished there in are indicative and approximate and the rates quoted shall not be subject to revision.</p> <p>2.7.9. To deploy BHEL's fitters, welders, operators and technicians in case of emergency/poor progress/deficiency in skill on the part of employees of contractor and to recover the expenditure on account of the same from contractor's bills.</p> <p>2.7.10. While every endeavor will be made by BHEL they cannot guarantee un-interrupted work to the contractor due to conditions beyond their control. Contractor will not be entitled for any compensation extra payment on his account.</p> <p>2.7.11. In the event of any dispute of any nature, the decision of BHEL shall be final and binding on the contractor.</p> <p>2.7.12. Cancellation of contract in part or full for contractor's default:</p> <p>If the contractor:</p> <p>a) Makes default in commencing the work within a reasonable time from the date of handing over of the site and continue in that state after a reasonable notice from Engineer-in-charge.</p> <p style="text-align: center;">OR</p> <p>b) in the opinion of the Engineer-in-charge at any time whether before or after the date / extended date for completion, make default in proceeding with the work, with due diligence and continue in that state after a notice of seven days from Engineer-in-charge</p> <p style="text-align: center;">OR</p> <p>c) fails to comply with any of the terms and conditions of the contract or after 7 days notice in writing with orders properly issued there under</p> <p style="text-align: center;">OR</p> <p>d) fails to complete the work order and items of work as per individual dates for completion and clear the site on or before the date of completion or fails to achieve the progress set out in accordance with the provisions of contract.</p>		

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The Accepting Officer may, without prejudice to any other right or remedy which shall have accrued or shall accrue to BHEL, cancel the contract as a whole or in part thereof or only such work order items of work in default from the contract. Whenever the Accepting officer exercises his authority to cancel the contract as a whole or in part under this condition he may complete the work at the contractor's risk and cost, provided always that in the event of the cost of completion (as certified by Engineer-in-charge, which is final and conclusive) being less than the contract cost the advantage shall accrue to the BHEL. If the cost of completion exceeds, the money due to the contractor under this contract the contractor shall either pay the excess amount ordered by General Manager or the same shall be recovered from the contractor by other means. Engineer-in-charge will have power to take possession of site and materials, constructional plant, implements, stores etc there on.

In case BHEL completes the work or any part thereof under the provisions of the contract conditions, then such completion is to be taken in to account in determining the excess cost to be charged to the contractor under this condition and shall consist of the cost of materials purchased and / or labour provided by BHEL, with an addition of such percentage to cover superintendence and establishment charges as may be decided by the General Manager, whose decision shall be final and conclusive.

2.7.13. If the contractor fails to pay the excess sum within a period of 30 days the Engineer-in-charge shall have the right to sell any or of the contractor's unused materials, construction plant, implements, temporary buildings etc., and apply the proceeds of sale thereof towards the satisfaction of any sum due from the contractor under the contract and if there after be any balance out standing from the contractor, it shall be recovered in accordance with the provisions of the contract.

2.7.14. **BHEL shall have the right to recover any money due from the contractor from any money due to the contractor under this contract or any other contract or from the Security Deposit.**

2.8. RESPONSIBILITIES OF THE CONTRACTOR IN RESPECT OF LOCAL LAWS, EMPLOYMENT OF WORKERS Etc.

The following are the responsibilities of the Contractor in respect of observation of local laws, employment of personnel, payment of taxes etc.

2.8.1. As far as possible unskilled workers shall be engaged from the local areas in which the work is being executed.

2.8.2. The contractor at all times during the continuance of this contract shall, in all his dealings with local labour for the time being employed on or in connection with the work, have due regard to all local festivals, religious and other customs.

2.8.3. The contractor shall comply with all state and Central Laws, Statutory Rules, Regulations etc., inclusive of those regarding labour and industrial laws which are applicable from time to time and they shall comply with the provisions of the said labour legislations, rules and regulations framed under the provisions of Employees Provident Fund and Miscellaneous Provisions Act 1952 shall be strictly followed.


2.8.4. The contractor shall pay all taxes, including sales Tax on works contract if any fees, license, charges, deposits duties, tool royalty commissions or other charges which may be leviable on account of any of his operations in execution of the contract in case BHEL is forced to pay any of such taxes. BHEL shall have the right to recover the same from the contractor either from his bills or other wise as deemed fit.


2.8.5. While BHEL would pay the inspection fees, of the Boiler Inspectorate, all other arrangements for the visits periodically by Boiler Inspector to site, Inspection Certificate etc., will have to be made by the contractor. However BHEL will not make any payment to Boiler Inspector in connection with contractor's welders qualification/requalification tests etc.


2.8.6. The contractor shall be responsible for provision of health and sanitary arrangements (more particularly described in Contract Labour Regulation & Abolition Act) safety precautions etc., as may be required for safe and satisfactory execution of the contract.

2.8.7. The contractor shall be responsible for providing proper accommodation including adequate medical facilities for the personnel employed by him.

2.8.8. The contractor shall be responsible for the proper behavior and observance of all regulations by the staff employed by him.

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<p>2.8.9. The contractor shall ensure that no damage is caused to any person/property of other parties working at site. If any such damage is caused it is the responsibility of the contractor to make good the losses or compensate for the same.</p> <p>2.8.10. All the properties/equipments/components of BHEL their client loaned with or without deposit to the contractor in connection with contract shall remain the properties of BHEL/their client. The contractor shall use such properties for purpose of execution of this contract, all such properties/equipments/components shall be deemed to be in good condition when received by the Contractors unless he notifies within 48 hours to the contrary. The Contractor shall return them in good condition as and when required by BHEL/their client. In case of non-return, loss, damage, repairs etc, the cost thereof, as may be fixed by the site Engineer, will be recovered from the Contractor.</p> <p>2.8.11. It is not obligatory on the part of BHEL to supply any tools and tackles or other materials other than those specifically agreed to do so by BHEL. However, depending upon the availability/possibility BHEL's customer's handing equipment and other plants may be made available to the contractor on payment of the hire charges/free of charges, as fixed subject to the conditions laid down by BHEL/Customer from time to time. Unless paid in advance such hire charges if applicable shall be recovered from contractors bills/security deposit in one installment.</p> <p>2.8.12. The Contractor shall fully indemnify BHEL against all claims of whatsoever nature arising during the course of erection/construction/performing work under the contract.</p> <p>2.8.13. In case the Contractor is required to undertake any work outside the scope of this contract the rate payable shall be those mutually agreed upon.</p> <p>2.8.14. Any delay in completion of works/non-achievement of periodical targets, due to reasons attributable to the contractor, the same will have to be compensated by the Contractor either by increasing manpower and resources or by working extra hours and/or by working more than one shift. All these are to be carried out by the contractor at no extra cost.</p> <p>2.8.15. The contractor shall arrange and co-ordinate his work in such a manner as to cause no hindrance to other agencies working in the same premises.</p> <p>2.8.16. All safety rules and codes applied by the client/BHEL at site shall be observed by the contractor without exception. The contractor shall be responsible for the safety of the equipment/material and works to be performed by him and shall maintain all light, fencing guards signs etc, or other protection necessary for the purpose. Contractor shall also take such additional precautions as may be indicated from time to time by the Engineer with a view prevent pilferage, accidents, fire hazards and due precautions shall be taken against fire hazards and atmospheric conditions. Suitable number of clerical staff, watch and ward, store keepers to take care of equipment, materials and construction tools and tackles shall be posted at site by the contractor till the completion of the work under this contract. The contractor shall arrange for such safety devices as are necessary for such type of work and carry out the requisite site tests of handling equipments, lifting tools, tackles, etc., as per prescribed standards and practices.</p> <p>2.8.17. The contractor will be directly responsible for payment of wages (Minimum wage as per statutory requirement of government) to his workmen. A pay roll sheet giving all the type payments given to the workers and duly signed by the contractor's representative should be furnished to BHEL Site office on or before 15th of every succeeding month.</p> <p>2.8.18. In case of any class of work for which there is no such specification as laid down in the contract, such work shall be carried out in accordance with the instructions and requirements of the Engineer.</p> <p>2.8.19. No levy of payment or charge made or imposed shall be impeached by reason of any clerical error or by reason of any mistake in the amount levied or demanded or charged.</p> <p>2.8.20. Also no idle labour charges will be admissible in the event of any stoppage caused in the work resulting contractor's labour being rendered idle due to any cause at any time.</p> <p>2.8.21. The contractor shall take all reasonable care to protect the materials and work till such time the plant/equipment has been taken over by BHEL/their client.</p> <p>2.8.22. Contractor shall not stop the work or abandon the site for whatsoever reason or dispute, excepting for force major conditions. All such problems/dispute, shall be separately discussed and settled without affecting the progress of work. Such stoppage or abandonment shall be treated as breach of contract and dealt with accordingly.</p>		

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<p>2.9. CONSEQUENCES OF CANCELLATION:</p> <p>Whenever BHEL exercises its authority to terminate the contract/withdraw a portion of work under the clause 2.7 they may complete the work by any means. In the event of the cost of completion as certified by the site Engineer which is final and conclusive being less than the contract cost, the advantage shall accrue to BHEL and that if the cost of completion exceeds the moneys due to the contractor under the contract, the contractor shall either pay the excess amount ordered by BHEL or the same shall be recovered from the contractor by any other means. This will be in addition to the forfeiture of Security Deposit and recovery of liquidated damages as per the relevant clauses.</p> <p>2.9.1. In case BHEL completes the work under the provision of this condition, the cost of such completion to be taken into account in determining the excess cost to be charged to the contract under this condition, shall consist of materials purchased and/or labour provided by BHEL with an addition of such percentage to cover supervision and establishment charges as may be decided by BHEL.</p> <p>2.10 INSURANCE:</p> <p>2.10.1. BHEL/their customer shall arrange for insuring the materials/properties of BHEL / customer covering the risks during transit, storage, erection and commissioning.</p> <p>2.10.2. It is sole responsibility of the contractor to insure his workmen against accidents and injury while at work and travel from their HQ to work area and back as required by relevant Rules and to pay compensation, if any, to workmen as per workmen’s Compensation Act. The work will be carried out in a protected area and all the rules and regulations of the client/BHEL in the area of project which are in force from time to time will have to be followed by contractor.</p> <p>2.10.3. If due to negligence and/or non-observance of safety and other precautions, any accident/injury occurs to any other persons/public, the contractor shall have to pay necessary compensation and other expenses if so decided by the appropriate authorities.</p> <p>2.10.4. If due to contractor’s carelessness’s, negligence of non-observance of safety precautions damage to BHEL’s /customer’s property and personnel should occur and if BHEL is unable to recover in full cost from the insurance company, the same will be recovered from the contractor.</p> <p>2.10.5. It shall be the responsibility of the contractor to provide security arrangement for the equipment/ materials belonging to BHEL and handed over to the contractor for erection/transportation till the same are taken over by BHEL after erection/returned to BHEL stores.</p> <p>2.11. STRIKES & LOCKOUTS:</p> <p>2.11.1. The contractor will be fully responsible for the entire dispute and other issues connected with his labour. In the event of the contract labour resorting to strike or the contract resorting to lock-out and if the strike or lock-out declared is not settled within a period of one month, BHEL, shall have the right to get the erection work executed employing its won labour or through any agencies or both and the cost so incurred by BHEL be deducted from the contractor’s bills.</p> <p>2.11.2. For any purpose whatsoever the employees of the contractor shall not be deemed to be in the employment of BHEL.</p> <p>2.12. FORCE MAJEURE:</p> <p>2.12.1 The following shall amount to FORCE MAJEURE:</p> <p>Act of God or of any Government, War, Sabotage, Riots, Civil commotion, Police action revolution, Flood, Fire, Cyclones, Earth quake and epidemic and other similar causes over which the contractor has no control.</p> <p>2.12.2. If the contractor suffers delay in the due execution of the contractual obligation due to delays caused by FORCE MAJEURE as defined above, the agreed time of completion of the job covered by this contract or the obligation of contractor shall be extended by a period of time equal to the period of delay provided that on the occurrence of any such contingency the contractor immediately reports to BHEL in writing the causes of delay and the contractor shall not be eligible for any compensation.</p>		

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<p>2.13. GUARANTEE:</p> <p>Even though the work will be carried out under the supervision of BHEL Engineers the contractor will be responsible for the quality of the workmanship and shall guarantee the work done for a period of twelve months from the date of completion of work as certified by the Engineer for good workmanship and shall rectify free of cost all defects due to faulty erection, detected during the guarantee period starting from the date of the completion of rectification. In the event of the contractor failing to repair the defective works within the time specified by the Engineer, BHEL may proceed to undertake the repairs of such defective works at the contractor's risk and cost, without prejudice to any other rights and recover the same from Security Deposit/other dues or by other legal means.</p> <p>2.14. ARBITRATION:</p> <p>Except where otherwise provided for in the contract all questions and disputes relating to the meaning of the specifications, designs, drawings and instructions herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in anyway arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the work or failure to execute the same whether arising during the progress of the work or after the completion or abandonment thereof shall be referred to the sole arbitration. The parties agree that the sole arbitrator shall be appointed by BHEL.</p> <p>The cases referred to arbitration shall be other than those for which the decision of the Accepting Officer, or Engineer-in-charge as the case may be is expressed in the contract to be final and conclusive</p> <p>Subject as aforesaid the provision of the Arbitration and Conciliation Act 1996 or any statutory modification or reenactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceeding under this clause.</p> <p>It is a term of the contract that the party involving arbitration shall specify the dispute or dispute to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute.</p> <p>The arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties fixing the date of first hearing.</p> <p>The arbitrator shall give a separate award in respect of each dispute or difference referred to him.</p> <p>The place of arbitration shall be Ranipet. However the arbitrator may hold the proceedings at any venue as per discretion. The award of the Arbitrator shall be final conclusive and binding on all parties to this contracts.</p> <p>In the event of disputes or differences arising between one public sector and a Government Department or between two public sector enterprises the above stipulations shall not apply, the provisions of BPE Office memorandum No.BPE/CL/001/76 MAN/2(1.10)76-BPE(GM-1)dated 1st January 1976 or its amendments for arbitration shall be applied.</p> <p style="text-align: center;">*+*</p>		

SPECIAL CONDITIONS OF CONTRACT

FOR

PG Test

BAP:FES :SPN :PG TEST



FES DEPARTMENT

BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

BOILER AUXILIARIES PLANT

INDIRA GANDHI INDUSTRIAL COMPLEX

RANIPET – 632 406

GENERAL TERMS AND CONDITIONS OF REVERSE AUCTION

BHEL will finalize the rates through paper price bid opening/Reverse auction. Hence Tenderers are requested to give their best prices at the first instance itself.

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 incase BHEL decides to go for RA.

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).

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.

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).

As a reminder to the bidders, system will flash following message (in RED Color) 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.

 Ranipet	Bharat Heavy Electricals Limited Boiler Auxiliaries Plant, Ranipet –632 406 FES DEPARTMENT	STATUTORY REQUIREMENT OF CONTRACT ES : F : 009 Page No.: 01 of 11
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STATUTORY REQUIREMENT

OF

CONTRACT


(FORMATS & PROCEDURES)

ES : F : 009



R 05- 275

FIELD ENGG. SERVICES DEPARTMENT
BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
BOILER AUXILIARIES PLANT
INDIRA GANDHI INDUSTRIAL COMPLEX
RANIPET – 632 406

 Ranipet	Bharat Heavy Electricals Limited Boiler Auxiliaries Plant, Ranipet –632 406 FES DEPARTMENT		STATUTORY REQUIREMENT OF CONTRACT ES : F : 009		
			Page No.: 02 of 11		
CHECK LIST					
Bidders are required to fill in the following details:					
1.a	Name of the Bidder With address, Phone No., Mobile No., Fax and e-mail.				
1.b	Nature of Firm (Whether Proprietary, Partnership, Pvt. Ltd, Others-Specify)				
2	Whether EMD submitted as per tender Specification Terms and conditions	Yes	/	No	
3	Validity of offer (offer shall be kept valid for acceptance for a period of minimum 6 months)	Yes	/	No	
4	Whether the following details are furnished.				
4.a	Previous Experience – Photocopies as in QR	Annexure-B-I & B-II	Yes	/	No
4.b	Present assignments		Yes	/	No
4.c	Organization chart of the Company	Annexure-C	Yes	/	No
4.d	Financial status of the Company	Annexure-A	Yes	/	No
4.e	In case of Company, proof of registration of the Company		Yes	/	No
4.f	Memorandum and Articles of Association of Company / copy of Partnership Deed.		Yes	/	No
4.g	Income Tax clearance Certificates		Yes	/	No
4.h	Solvency Certificate from a Nationalized Bank		Yes	/	No
4.i	Power of Attorney of the person signing the tender duly attested by a Notary Public		Yes	/	No
4.j	Names and addresses of Directors, Partners their Experience and qualification		Yes	/	No
4.k	EPF regn No. (with a copy of certificate)				
4.l	Service Tax regn No. (with copy of cert')				
4.m	E- Payment acceptance as per appendix.	Yes	/	No	
4.n	Rate schedule as per the schedule appended	Yes	/	No	
5	Whether the Bidder is conversant with local labour laws and conditions	Yes	/	No	
6	Whether the Bidder is aware of all safety Rules and codes.	Yes	/	No	
7	Whether the declaration sheet (as per appendix enclosed) filled	Yes	/	No	
8	Whether all the pages are read, understood and signed				
SIGNATURE OF BIDDER					
NOTE : The Bidders are requested to peruse the Tender Specification terms and conditions carefully and furnish the above information also in detail as required.					

 Ranipet	Bharat Heavy Electricals Limited Boiler Auxiliaries Plant, Ranipet –632 406 FES DEPARTMENT	STATUTORY REQUIREMENT OF CONTRACT ES : F : 009
		Page No.: 03 of 11

OFFER OF THE BIDDER

(FORMAT - To be typed written in LETTER HEAD and submitted along with offer)

To

The Addl. General Manager
FES & ES Dept,
Bharat Heavy Electricals Limited,
Boiler Auxiliaries Plant,
Indira Gandhi Industrial Complex,
RANIPET –632 406. (TAMIL NADU).

Sir,

I / We hereby offer to carry out the work detailed in the Tender Specification No. _____ issued by M/s. Bharat Heavy Electricals Limited, Boiler Auxiliaries Plant, Ranipet in accordance with the terms and conditions thereof:

I/ we have carefully pursued the following documents connected with the above work and agree to abide by the same. We herewith confirm that we have visited the site _____.

- General terms and conditions of work (ES: F:010)
- Statutory requirement of Contract (ES: F:009)
- Tender Specification no. (_____)
- Special Instructions to Bidder
- General terms and conditions of Reverse Auction.

I/We have deposited / forwarded herewith the Earnest Money Deposit in the form prescribed and as stipulated in Clause No.1.4. of the General Conditions of Contract for Works towards the Earnest Money Deposit for a sum of **Rs.**

(Rupees. _____, only)

vide Pay Order No.....Dt..... 2015 /

Demand Draft No..... Dt..... 2015 which shall be refunded should our offer not be accepted. Should our offer be accepted, I/We further agree to deposit such additional sum, within the stipulated time as may be indicated by BHEL, which along with the sum of **Rs.**

(Rupees. _____, only)


shall make up the Security Deposit for the work as provided for in clause 1.8.2 of the General Conditions of Contract for Works.


I/We further agree to execute all the works referred to in the said documents upon the terms and conditions contained or referred to therein and as indicated in the Annexure enclosed thereto.

SIGNATURE OF BIDDER:		
Place:		ADDRESS:
Date:		

WITNESSES WITH FULL ADDRESS

	SIGNATURE	NAME	ADDRESS
1			
2			
3			

 Bharat Heavy Electricals Limited Boiler Auxiliaries Plant, Ranipet –632 406 FES DEPARTMENT Ranipet	STATUTORY REQUIREMENT OF CONTRACT ES : F : 009		
	Page No.: 04 of 11		
APPENDIX – II (To be filled by Tenderer and submitted along with Tender document)			
S.No.	PARTICULARS	YES	NO
01	GST		
a.	GST Registration No. of Tenderer (copy to be enclosed)		
b.	Issue of GST Invoice as per Rule 9 of Cen vat Credit rules2004		
c.	Whether Tenderer is taking GST Credit for their Inputs		
d.	Under which Service Head is Service provided		
e.	If GST is Exempted , furnish reasons		
f.	BHEL GSTNo. (To indicate in your Invoice) : GSTIN: 33AAACB4146P2ZL		
02	INCOME TAX		
a.	PAN No. of Tenderer		
b.	If Exempted , furnish exemption Certificate		
c.	PAN No. of BHEL : AAACB/4146/P		
03			
a.			
b.			
c.			
d.	If Exempted , furnish Reasons		
	NOTE :		
	1. Rates Quoted shall be clearly indicated that they are INCLUSIVE of all Taxes & Duties except service tax. The Contractor has to issue invoice accordingly. Also refer clause 15.0 of Tender specification regarding Taxes & Duties		
	2. Payment will be made only through e-payment to your account. Payment through Cheque / DD payment will not be made by BHEL.		
Tenderer has to submit Banker's Certificate as per format specified in APPENDIX- IV.			
Agreed to the Above Conditions			
Signature of the Tenderer :			

 Bharat Heavy Electricals Limited Boiler Auxiliaries Plant, Ranipet –632 406 FES DEPARTMENT Ranipet	STATUTORY REQUIREMENT OF CONTRACT ES : F : 009
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APPENDIX - III
ACCEPTANCE FOR ELECTRONIC FUND TRANSFER / RTGS TRANSFER

01	NAME & ADDRESS OF THE SUPPLIER / VENDOR MOBILE, PHONE NO. WITH STD CODE	
	PAN NO.	
02	VENDOR CODE (as in Purchase Order)	
03	Details of Bank Account:	
A)	NAME & ADDRESS OF THE BANK (WITH PIN CODE)	
B)	BANK TELEPHONE NUMBER (WITH STD CODE)	
C)	BANK BRANCH CODE	
D)	MICR CODE	
E)	ACCOUNT NUMBER	
F)	TYPE OF ACCOUNT	CURRENT A/C / OD / CASH CREDIT
G)	Vendor name as per Bank records	
H)	BANK BRANCH RTGS IFSC CODE	
I)	BANK BRANCH NEFT IFSC CODE	
J)	VENDOR'S EMAIL ID (give two ids)	
1		
2		
K)	NAME OF AUTHORISED SIGNATORY	

CERTIFICATE

I / We hereby agree to receive the payments due from BHARAT HEAVY ELECTRICALS LIMITED, RANIPET by the National Electronic Funds Transfer and/or RTGS Transfer mode by credit to my / our above mentioned Bank Account. I / We also agree that payments made to the above mentioned Account is a valid discharge of the liability of Bharat Heavy Electricals Limited, Ranipet. I / We also agree to bear the applicable Bank Charges for the above mode of transfer.

AUTHORISED SIGNATORY OF VENDOR WITH SEAL

Banker's Certification

We confirm that we are enabled for receiving RTGS and NEFT credits and we further confirm that the account number of _____ (name of account holder), the signature of the authorized signatory and the MICR and IFSC codes of our Branch mentioned above are correct.

PLACE:

DATE:

 (Manager / Officer's signature Under Bank stamp)
 Authorization No. _____.

Note: This EFT Form is to be submitted duly filled in manually in all fields and duly signed by Authorised Signatory and certified by Banker.

 Ranipet	Bharat Heavy Electricals Limited Boiler Auxiliaries Plant, Ranipet –632 406 FES DEPARTMENT	STATUTORY REQUIREMENT OF CONTRACT ES : F : 009
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APPENDIX – IV

Certified by Chartered Accountant on letter head

This is 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.S.O.1722(E) dated 5, 2006 :

Rs..... Lakhs

- 2. For Services 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..... Lakhs

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


Date:


(Signature)

Name –

Membership Number –

Seal of Chartered Accountant

 Ranipet	Bharat Heavy Electricals Limited Boiler Auxiliaries Plant, Ranipet –632 406 FES DEPARTMENT	STATUTORY REQUIREMENT OF CONTRACT ES : F : 009
		Page No.: 07 of 11
CERTIFICATE OF NO DEVIATION (FORMAT - To be typed written in LETTER HEAD and submitted along with offer)		
I / Weof M/s hereby certify that there is no deviation from the Tender conditions either technical or commercial and I am / We are agreeing to all the terms and conditions mentioned in the Tender Specification No. : BAP : FES: PG TEST 2018.		
Date :	SIGNATURE OF THE BIDDER	

 Ranipet	Bharat Heavy Electricals Limited Boiler Auxiliaries Plant, Ranipet –632 406 FES DEPARTMENT	STATUTORY REQUIREMENT OF CONTRACT ES : F : 009
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DECLARATION SHEET (FORMAT - To be typed written in LETTER HEAD and submitted along with offer)		
<p>I,</p> <p>hereby certify that all the information and data furnished by me with regard to this Tender Specification No. BAP : FES: PG TEST 2018 are true and complete to the best of my knowledge. I have gone through the specification, conditions and stipulations in detail and agree to comply with the requirements and intent of specifications. Further certify that I am duly authorized representative of the under mentioned Bidder and a valid power of Attorney to this effect is also enclosed.</p> <p>BIDDER'S NAME AND ADDRESS:</p>		
<p>AUTHORISED REPRESENTATIVE'S SIGNATURE WITH NAME AND ADDRESS</p>		


 Ranipet	Bharat Heavy Electricals Limited Boiler Auxiliaries Plant, Ranipet - 632 406 FES DEPARTMENT	STATUTORY REQUIREMENT OF CONTRACT ES: F : 009
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FINANCIAL VIABILITY (Annexure-A)

Sl	Aspects	Rs.	To be filled-up
1	Owner's Capital in the business (In case of Partnership please Mention percentage of shares and Amount)	Rs.	
2	Quantum of business done during Last three financial years.	Year 20 ___ - ___	Rs.
		Year 20 ___ - ___	
		Year 20 ___ - ___	
		(Year 20___ - __)	
3	Value of Fixed Assets of the business in last three years	Year 20 ___ - ___	Rs.
		Year 20 ___ - ___	
		Year 20 ___ - ___	
		(Year 20___ - __)	
4	Guarantee limits (if any) Enjoyed by the firm	Rs.	
5	Overdraft limits (if any) Enjoyed by the firm	Rs.	
6	Income Tax paid during the last three Years	Year 20 ___ - ___	Rs.
		Year 20 ___ - ___	
		Year 20 ___ - ___	
		(Year 20___ - __)	
7	Please state whether audited profit and Loss Account and Balance Sheet for last 3 Years and Solvency Certificate are Enclosed.		Yes / No

Note: All the above documents should be duly certified by auditors/bank as may be applicable.

Signature of the Bidder

 Ranipet	Bharat Heavy Electricals Limited Boiler Auxiliaries Plant, Ranipet –632 406 FES DEPARTMENT		STATUTORY REQUIREMENT OF CONTRACT ES : F : 009
			Page No.: 11 of 11
ANALYSIS OF UNIT RATE QUOTED (Only Percentages to be Quoted)			
SI-No	Description	Percentage of the rate quoted	Remarks, If any
1	Fixed expenses towards a. b. c. etc		
2	Salary & wages for staff and workers		
3	Overheads		
4	Extra work incidental to Testing		
NOTE: All Bidders are requested to take care that the rates quoted by them are not disclosed in any way while furnishing the above details.			
Date :		SIGNATURE OF THE BIDDER	

TENDER DOCUMENT (TENDER SPECN No : BAP : FES: PG TEST 2018)**Price-Bid** to be submitted along with **Part-II** ie. Price Bid***(1. GST Percentage 2. Sub total, GST amount and Total amount incl. GST to be filled in this copy)**

Name Of Work : (For Detailed Scope Of Work Please Refer The Tender Specification.)

NAME OF WORK: Conducting Performance Guarantee Test in Electrostatic Precipitator (ESP) of 500MW and above at various Power Plants as per laid down procedure. The objective is to determine the collection efficiency, pressure drop and auxiliary Power consumption of Electrostatic Precipitator. The collection efficiency to be calculated based on the dust concentrations at the inlet and outlet of precipitator. The scope of this work involves (A) Measurement of parameters like flue gas flow rate, flue gas temperature, dust concentration at the inlet & outlet of electrostatic precipitator, corona / auxiliary power measurements. (B) Providing of skilled man power for the above scope of work.

EXECUTION PERIOD : Two Years from date of LOI / CONTRACT

Schedule No	Description	Unit	Quantity	% Weightage of each item w.r.to Sub Total (A) (excluding GST)
01 A (PART A)	Preparation, trial and conductance of ESP PG test of ESP capacity 500 MW and above having 6 Passes maximum Passes and 2 bus section per pass. Including, manpower, boarding, lodging, local conveyance and other incidentals of test crew comprising of 4 Engr./ Diploma Holder for 10 days	No	24	90.3495%
01 B (PART B)	To & Fro Conveyance for conducting ESP PG test across India for 500MW & above for four persons	No	24	9.6505%
	Total weightage (Excl. GST)			100%
I	Sub total Excl. GST	(A)	----->	*Rs.
II	GST Amount @ _____%	*	(B) ----->	*Rs.
III	Total Value incl. GST	(C) = (A) + (B)	----->	*Rs.

- Individual item rates for the above schedules will be arrived based on the Sub Total (A) quoted by the bidder & % percentage weightage indicated against each schedule. This amount shall be rounded off to the nearest Rupee.
- Any other entry elsewhere (individual item rate, if any) in the Price bid by the bidder shall be treated as Null and Void .

**SIGNATURE OF THE
CONTRACTOR WITH SEAL**

TENDER DOCUMENT (TENDER SPECN No : BAP : FES: PG TEST 2018)**Price-Bid** to be submitted along with **Part-II** ie. Price Bid***(1. GST Percentage 2. Sub total, GST amount and Total amount incl. GST to be filled in this copy)**

Name Of Work: (For Detailed Scope Of Work Please Refer The Tender Specification.)

NAME OF WORK: Conducting Performance Guarantee Test in Electrostatic Precipitator (ESP) of **270 MW and below** at various Power Plants as per laid down procedure. The objective is to determine the collection efficiency, pressure drop and auxiliary Power consumption of Electrostatic Precipitator. The collection efficiency to be calculated based on the dust concentrations at the inlet and outlet of precipitator. The scope of this work involves (A) Measurement of parameters like flue gas flow rate, flue gas temperature, dust concentration at the inlet & outlet of electrostatic precipitator, corona / auxiliary power measurements. (B) Providing of skilled man power for the above scope of work.

EXECUTION PERIOD : Two Years from date of LOI / CONTRACT

Schedule	Description	Unit	Quantity	% Weightage of each item w.r.to Sub Total (A) (excluding GST)
2A (Part A)	Preparation, trial and Conductance of ESP PG test of ESP capacity 270 MW and below having maximum 2 Passes and 2 bus section per pass. Including, manpower, boarding, lodging, local conveyance and other incidentals of test crew comprising of 2 Engr./ Diploma Holder for 10 days	No	30	90.3495%
2B (Part B)	To & Fro Conveyance for conducting ESP PG test across India for 270 MW and above for two persons	No	30	9.6505%
	Total Weightage (w.r.t. Sub total Excl. GST)			100%
I	Sub total Excl. GST (A)		-----→	* Rs.
II	GST Amount @ _____% (B)		-----→	*Rs.
III	Total Value including GST (C) = (A) + (B)		-----→	*Rs.

- Individual item rates for the above schedules will be arrived based on the Sub Total (A) quoted by the bidder & % percentage weightage indicated against each schedule. This amount shall be rounded off to the nearest Rupee.
- Any other entry elsewhere (individual item rate, if any) in the Price bid by the bidder shall be treated as Null and Void .

**SIGNATURE OF THE
CONTRACTOR WITH SEAL**

ENVIRONMENTAL PROTECTION AGENCY

**PERFORMANCE TEST PROCEDURE
OF
ELECTROSTATIC PRECIPITATOR**





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1999

Publication No. BAP 0003 – 01

Issued by

TECHNICAL SERVICES
ENGINEERING AND DEVELOPMENT CENTRE
BHARAT HEAVY ELECTRICALS LIMITED
RANIPET - INDIA



4.3 PARTICULATE SAMPLING EQUIPMENT

A Thimble sampling Train (TST) is used for this purpose. The main function of TST is sampling a portion of the particulate laden flue gas at iso-kinetic sampling rate to separate and retain the particulate for weighing and to measure the quantity of gas sampled. The Fig 11.1 shows the scheme of Thimble Sampling Train used for the test. The main parts of the sampling equipment are briefly described in the following pages.

4.3.1 FILTER HOLDER WITH SAMPLING PROBE

The Fig 11.2 shows details of the probe, filter holder and probe holder. The filters are made of borosilica quartz or glass fibre and can withstand temperatures upto 300° C. The filters are in the form of thimbles of size 30mm diameter and length 77mm approximately. The parts of the probe and holder are made of acid resistant steel. The length of the sampling tube can be adapted to the duct dimensions.

The standard probe including the tube parts may reach a length of 3200mm and can be extended further by using extension tubes. The filter holder is used to house the nozzles with inside diameters of 5 mm to 12 mm. Each nozzle is designed in such a way that a static pressure recovery is obtained before the inside pressure connection in order to compensate the flow losses through the nozzles.

The inlet diameter of the nozzle to be selected for sampling is dependent upon the volume capacity of the sampling train.

4.3.2 VACUUM PUMP

The main function of the pump is to extract flue gas at the iso-kinetic rate through the probe. The pump used for this purpose is a 4 cylinder diaphragm pump of Neuberger make.



Bharat Heavy Electricals Limited

4.3.3 INSTRUMENT CASE

The Fig. 11.3 and Fig 11.4 show the measuring functions of the instrument case as well as the controls.

At the inlet of the case, there is a gas cooler from which the condensate flows down into the condensate bottle. The remaining water content of the gas i.e. water at gas meter is determined by measuring the dry bulb and wet bulb temperatures at gas meter.

In order to avoid humidity in the gas meter, the gas is reheated by flushing the gas meter section in the TST case with hot air from a power controlled hot-air fan. A thermostat has been provided to control the temperature which is normally set at 50° C. The digital temperature indicator provided also shows the temperature at the outlet of the gas meter, wet bulb and dry bulb. The wet bulb temperature is obtained via a gas flushed thermocouple provided with a wet sock which is moistened continuously from the water reservoir. All the thermocouples used are of chromel – alumel (K type).

The gas meter used is of Elster make and type G-4 and indicates the rate of flue gas sampled. The maximum capacity of gas meter is 3 to 6 m³/hr.

The flow is mainly controlled by means of coarse control and fine control valves. The fine control valve is used for small gas flow and to avoid high suction between the main control valve and the vacuum pump.

4.4 CALIBRATION REQUIREMENT

The instruments like pitot tubes, and gas meters, thermocouples and digital temperature indicators are calibrated at periodic intervals to check for the accuracy at BHEL/ R&D and other reputed institutions in India.



9.0 TEST PROCEDURE

On arrival at the plant, the test team should check that all the preparations are done and ensure that the best operating conditions are prevailing for conducting the test. The instruments for the measurement should be located at the correct places and checked for their operational soundness before start of the test. The testing procedure is discussed in detail as follows.

9.1 PREPARATION OF FILTER

The filters together with the glass jars are marked for identification. They are placed in oven without lid on the jars and dried for about 2 hours approximately at the same temperature as that in the flue gas duct where the measurements are to be taken, but not less than a temperature of 110° C. The filters are then allowed to cool in a desiccator with lid on the jar for about 30 min. The desiccator should be placed close to the balance to avoid temperature difference. The lid of the jar should be lifted momentarily to equalise the pressure difference immediately before weighing. The thimble weighing period is recommended to be as short as possible. All weights shall be recorded on a suitable test sheet.

9.2 GAS FLOW MEASUREMENT

A traversing is made with pitot tube at the sampling cross section. The number of points over the measurement cross section depends of geometry and dimensions of the duct. It is important that the pitot tube is distinctly marked so that the measurements are always made at the same point each time a traversing is performed.

The dynamic pressure is read from a micro-manometer. It is then converted into velocity at each sampling point and total gas flow in the duct is calculated.

To measure the temperature of the gas, a thermocouple is fastened to the pitot tube and readings of both temperature and dynamic pressure are recorded in a traverse log sheet.



9.3 SELECTION OF PROBE NOZZLE DIAMETER

The diameter of the probe nozzle is chosen considering the capacity of the measuring equipment and the highest velocity measured during the pitot traverse. The maximum capacity of the equipment is around 50 lit/min at the gas meter. However, there may be variations due to the type of the pump and the penetration of the dust into the measuring filter.

The nozzle diameter is selected based on the assumed gas flow rate and moisture content in the flue gas. The biggest possible sampling constant, Kn is calculated as follows.

$$Kn = \frac{q}{V\sqrt{\gamma_t} \times (\sqrt{\gamma_t})/\gamma_o \times \sqrt{(760/Bp)}}$$

Where

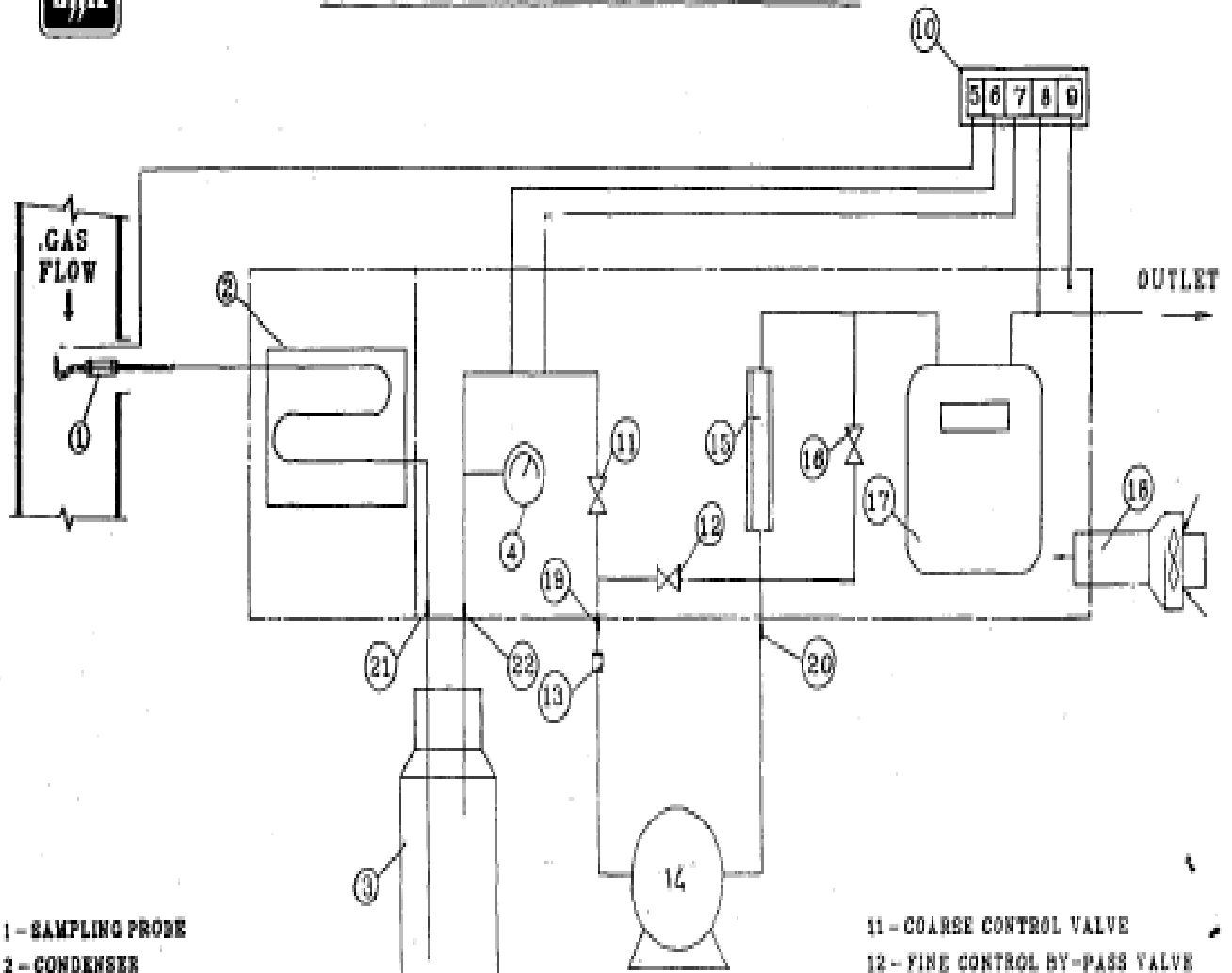
- Kn = Biggest possible sampling constant (proportional to nozzle area)
- q = Assumed gas flow rate through the gas meter, lit/min.
- $V\sqrt{\gamma_t}$ = as defined in 4.2 (for maximum measured)
- $(\sqrt{\gamma_t})/\gamma_o$ = obtained from the table 15.1 to 15.16
- γ_t = Assumed density of gas at test condition, kg/m³.
- γ_o = Assumed density of gas at standard condition 760 mmHg and 0° C.
- $\sqrt{(760/Bp)}$ = Correction for barometric pressure.
- Bp = Barometric pressure in mmHg.

Based on the sampling constant, the assumed moisture content in the flue gas and the gas meter temperature, the nozzle diameter is obtained from the table 14.1 to 14.7. Nozzles of diameter smaller than 5 mm are not recommended except for special conditions such as high gas velocities. Based on our experience, it is recommended to use nozzle of diameter 5 mm.



SCHEME OF THIMBLE SAMPLING TRAIN

Fig. A.2

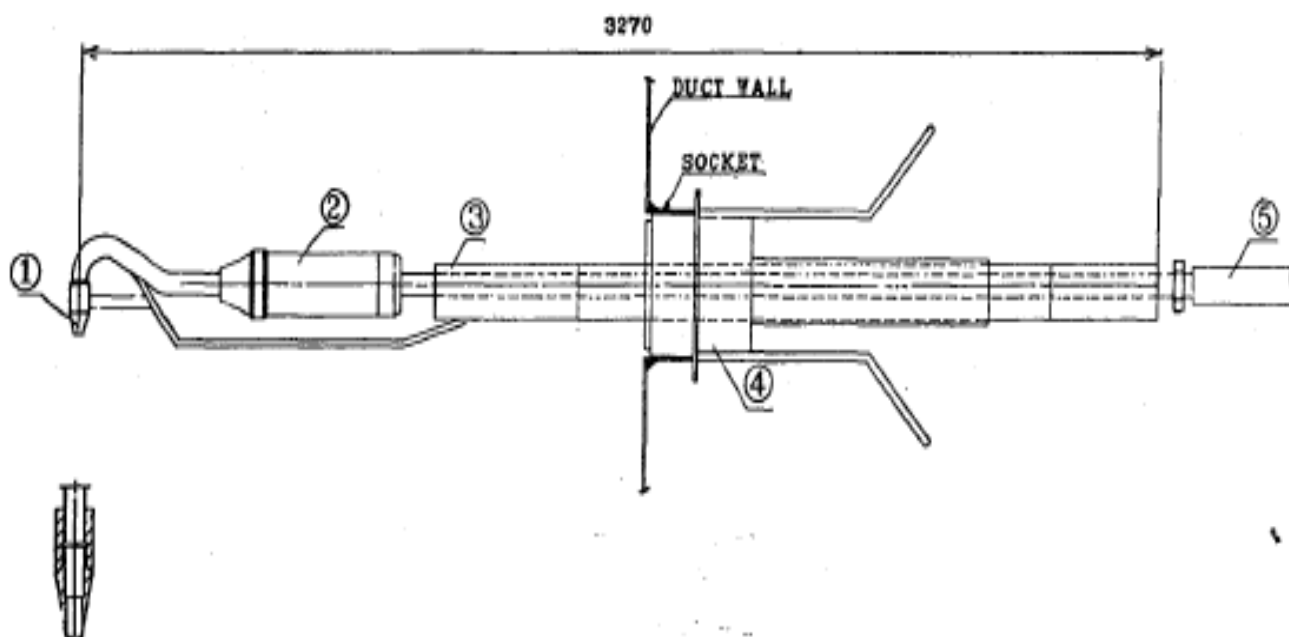


- 1 - SAMPLING PROBE
- 2 - CONDENSER
- 3 - CONDENSER BOTTLE
- 4 - VACUUM GAUGE
- 5 - FLUE GAS TEMPERATURE
- 6 - DRY BULB TEMPERATURE
- 7 - WET BULB TEMPERATURE
- 8 - GAS METER TEMPERATURE
- 9 - INSTRUMENT CASE TEMPERATURE
- 10 - DIGITAL TEMPERATURE INDICATOR

- 11 - COARSE CONTROL VALVE
- 12 - FINE CONTROL BY-PASS VALVE
- 13 - PROTECTIVE FILTER
- 14 - VACUUM PUMP
- 15 - FLOW INDICATOR
- 16 - FLOW INDICATOR BY-PASS VALVE
- 17 - GAS METER
- 18 - HEATER
- 19 - 22 CONNECTIONS



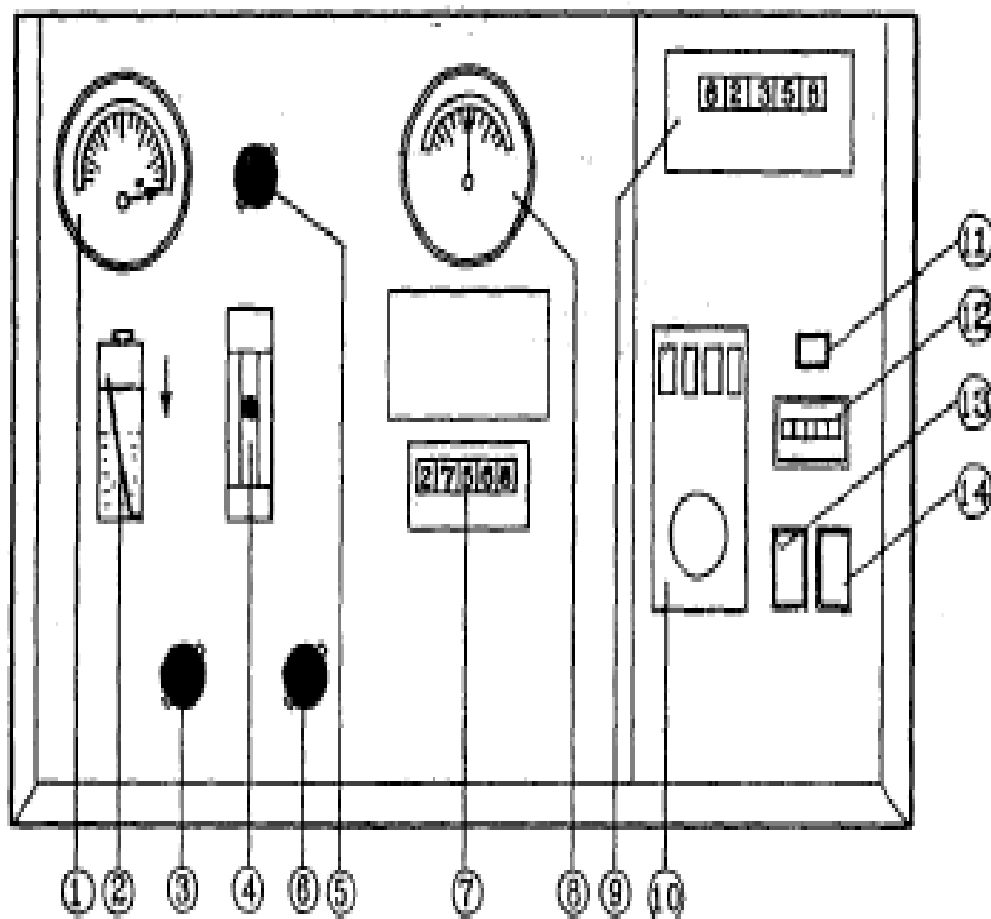
SAMPLING PROBE



- 1. NOZZLE TIP
- 2. FILTER HOLDER
- 3. SAMPLING TUBES
- 4. PROBE HOLDER
- 5. RUBBER HOSE

FIG 11.2

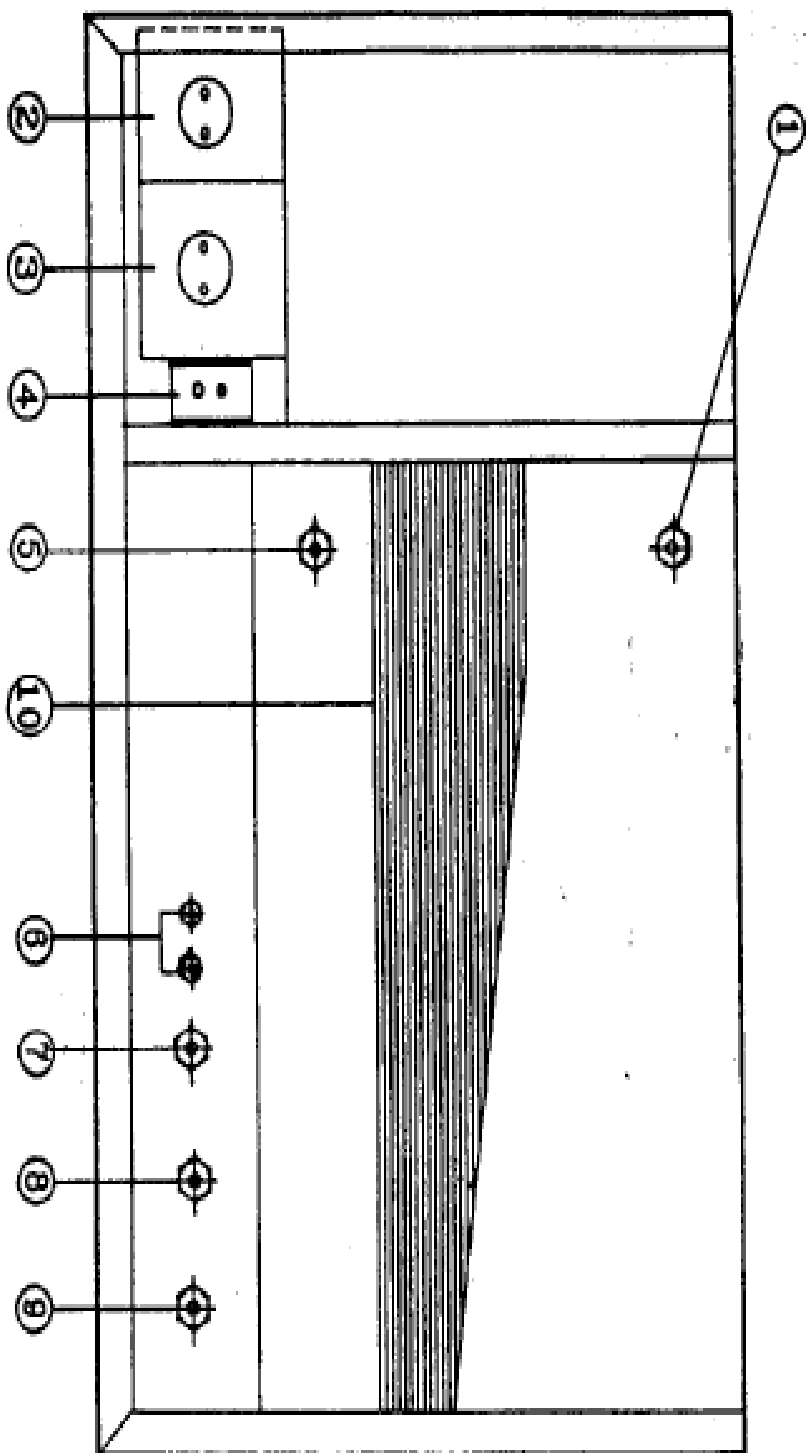
THIMBLE SAMPLING TRAIN - FRONT VIEW



- | | |
|--------------------------------|--|
| 1. VACUUM METER | 8. DIFFERENTIAL PRESSURE GAUGE |
| 2. WET TEMPERATURE RESERVOIR | 9. DIGITAL TEMPERATURE INDICATOR |
| 3. FLOW INDICATOR BYPASS VALVE | 10. REGULATOR - HEATING OF INSTRUMENT CASE |
| 4. ROTAMETER | 11. INDICATING LAMP |
| 5. COARSE CONTROL VALVE | 12. OPERATING TIMER |
| 6. FINE CONTROL VALVE | 13. MAIN SWITCH |
| 7. GAS METER | 14. PUMP SWITCH |

FIG. 11.3

THIMBLE SAMPLING TRAIN - REAR VIEW



- | | |
|-------------------------------|------------------------------------|
| 1. CONNECTION FROM PROBE | 6. PRESSURE CONNECTIONS FROM PROBE |
| 2. POWER SUPPLY - PUMP | 7. OUTLET TO PUMP |
| 3. POWER SUPPLY - AUX. | 8. INLET TO PUMP |
| 4. THERMOCOUPLE CONNECTION | 9. FROM CONDENSER BOTTLE |
| 5. CONDENSER OUTLET TO BOTTLE | 10. DRYER |

TEST DATA SHEET 12.1

AQCS : PT :
PAGE NO. :

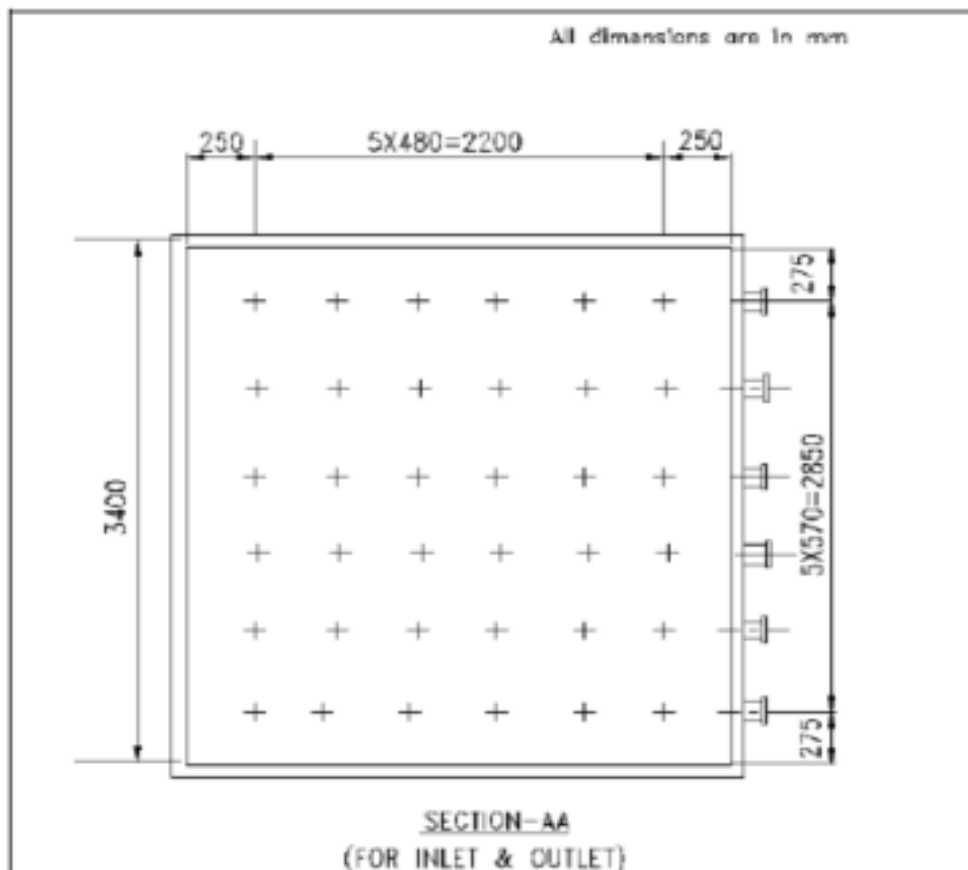
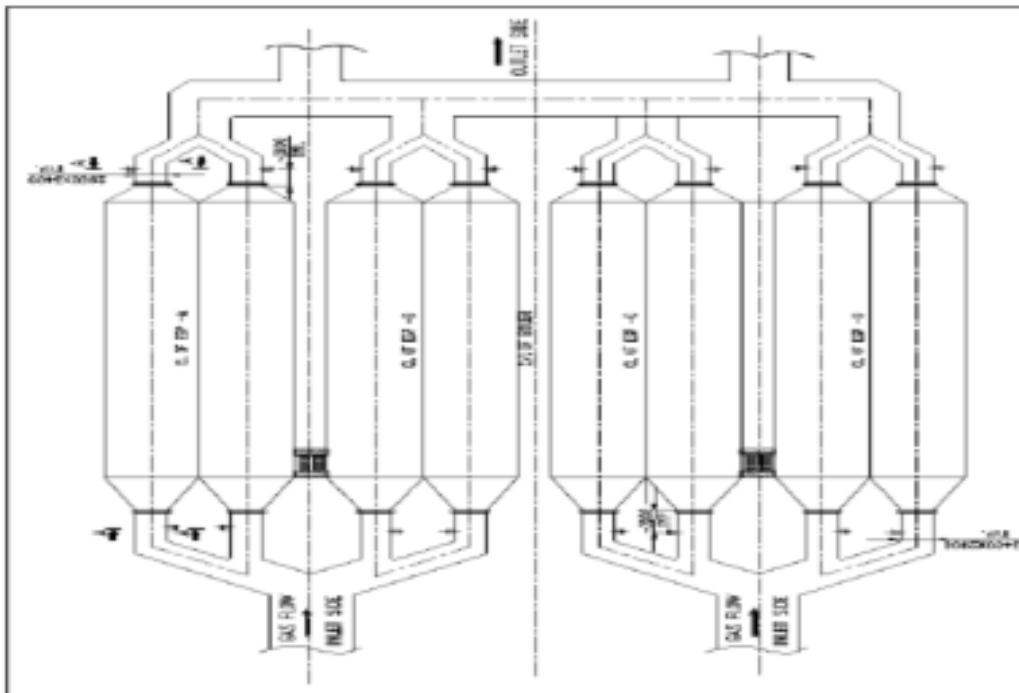
Project :	Unit No. :	Date :
Gas patch : Location :	Test No. :	Time :
Assumed density (γ_0) : Kg/Nm ³	Duct area : m ²	
Assumed moisture content : % vol	Ambient temperature : °C	
Sampling time/point : min.	Total Sampling time : min.	
Nozzle diameter : mm	Barometric pressure : mmHg	
PITOT TUBE NO. :	Static Pressure : mmWc	
Calibration constant (Kp) :	FLUE GAS ANALYSIS BY VOLUME	
GAS METER No. :	CO ₂ : %	O ₂ : %
Calibration constant (Kg) :	Sampling rate calculation	
GAS METER READING	$= K_{Tot} \times \frac{1}{Kg} \times Kp \times V \sqrt{\gamma t}$	
Stop : m ³	$= \dots \times Kp \times V \sqrt{\gamma t}$	
Start : m ³	$= \dots \times Kp \times V \sqrt{\gamma t} \text{ lit / min.}$	
Sampled volume : m ³	$K_{BAR} = \sqrt{\frac{760}{Bp}}$	
$K_{Tot} = \frac{\sqrt{\gamma t}}{\gamma_0} \times K_{BAR} \times K_{UTS}$	* From tables	
Jar / Thimble No. :		
Gross weight (gms) :		
Tare weight (gms) :		
Dust weight (gms) :		
Average flue gas temp. : °C	Average dry blub temp. : °C	
Average gas meter temp. : °C	Average Kp V ft :	
Average wet bulb temp. : °C	Condensate measured : gms	
REMARKS		
BHEL :: RANIPET	BHEL :: SITE	CUSTOMER



BOILER CONTROL ROOM DATA
Readings are to be recorded every 30 minutes

PROJECT :		UNIT :	TEST NO :	DATE :				
TEST TIME		Hrs.						
01.	BOILER LOAD	MW						
02.	MAIN STEAM FLOW	T/hr.						
03.	MAIN STEAM TEMP.	°C						
04.	ECO. INLET TEMP.	°C						
05.	ECO. OUTLET TEMP.	°C						
06.	HP HEATERS IN SERVICE							
07.	NO. OF COAL MILLS							
08.	NO. OF OIL BURNERS							
09.	COAL FLOW	T/hr.						
10.	TOTAL AIR FLOW	T/hr.						
11.	FLUE GAS TEMP. AT APH INLET, °C	LEFT						
		RIGHT						
12.	FLUE GAS TEMP. AT APH OUTLET, °C	LEFT						
		RIGHT						
13.	PA TEMP. AT APH OUTLET, °C	LEFT						
		RIGHT						
14.	SA TEMP. AT APH OUTLET, °C	LEFT						
		RIGHT						
15.	FD FAN CURRENT amps.	LEFT						
		RIGHT						
16.	ID FAN CURRENT amps.	1						
		2						
		3						
BHEL/RANIPET		BHEL/SITE		CUSTOMER				

Typical layout of test pocket location for 500 / 600 MW



Typical layout of test pocket location for 200 / 210 MW

