

VENDOR EMPANELMENT

FOR

VARIOUS TYPES OF PRODUCTS BEING PROCURED

BY

BHARAT HEAVY ELECTRICALS LIMITED, POWER SECTOR, WESTERN REGION, NAGPUR

**APPLICATION FORM, PROCEDURE & FORMATS FOR
EMPANELMENT**



BHARAT HEAVY ELECTRICALS LIMITED
(A GOVERNMENT OF INDIA UNDERTAKING)
POWER SECTOR - WESTERN REGION
SHREEMOHINI COMPLEX
345-KINGSWAY, **NAGPUR**-440 001

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BHARAT HEAVY ELECTRICALS LIMITED, POWER SECTOR, WESTERN REGION, NAGPUR

APPLICATION FORM, PROCEDURE & FORMATS FOR EMPANELMENT

LAST DATE FOR SUBMISSION: - Please obtain updated information from web sites
(www.bhel.com → Tender Notification → View Corrigendum)

THIS APPLICATION FORM IS ISSUED TO:

M/s.

.....

.....

PLEASE NOTE:

THIS APPLICATION FORM IS NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

Dy. General Manager (Purchase)

Place: Nagpur

Date:

TABLE OF CONTENTS

<u>SN</u>	<u>DESCRIPTION</u>	<u>Page Number</u>
1.	Vendor Empanelment Cover Page	1
2.	Vendor Empanelment Document Issue form	2
3.	Table of Contents	3
4.	Notice for Vendor Empanelment	4
5.	Introduction to Vendor Empanelment	6
6.	Guidelines for filling up Formats	7
7.	Procedure for submission	9
8.	Application for Empanelment	10
9.	Declaration by Authorized Representative	11
10.	Categories for Vendor Empanelment (Section –I)	12
11.	General Requirements & Conditions for empanelment Section (II)	14
12.	Supplier registration Form (Section –III)	15
13.	Vendor Evaluation (Section –IV)	25
14.	Consolidated Technical Specifications Of Products Categorized (Section –V)	29

NOTICE FOR VENDOR EMPANELMENT

Bharat Heavy Electricals Limited, Western Region, Nagpur herein invites application from experienced and reputed vendors for empanelment for the supply of various products as listed in Section-I of this document

- ❖ Sale and web site hosting of Vendor Empanelment documents : from 13.10.2010 onwards
- ❖ Scrutiny of documents and Vendor Empanelment shall be done on yearly basis in April of every year. However, BHEL may choose to scrutinize on ongoing basis.
- ❖ As we are initiating empanelment process in 2010, hence as a special case this year Scrutiny will be done in Nov-2010. All the application received before 17.11.2010 will be considered for empanelment.

Please visit our following web sites for complete details, procedure for submission etc:-

- ❖ www.bhel.com → Tender Notification

GENERAL

1) **Timing of sale of Documents:**

Vendor Empanelment Application documents will be issued from BHEL PSWR Nagpur office from 10:00 AM to 4:00 PM on all working days.

Complete details of Vendor Empanelment hosted in BHEL web page (as given above) can be directly downloaded and used for submission of Application Forms. Document charges shall be paid to BHEL along with or before submission of Application.

2) **Holidays:**

Sale of Tender Documents shall not take place on National Holidays, holidays declared by the Central or State Governments, Sundays, second and last Saturdays

3) **Fulfillment of Basic Criteria:**

Vendors shall have to meet the Criteria stipulated in the Application documents in order to be considered for Empanelment.

4) **Vendor Empanelment Application Cost and Courier Charges:**

Document charges @ Rs 2000/- per set and courier charges @ Rs 500/- per set shall be made by Account Payee Demand draft in favor of "Bharat Heavy Electricals Limited" payable at Nagpur or in cash payable at cash counter of this Office. Courier charges shall be paid in case vendor requests for dispatch of documents by courier.

In case the documents are downloaded from web page, the document charges (of Rs 2000/-) shall be remitted positively along with or before submission of filled up Application.

5) **Other :**

- ❖ BHEL takes no responsibility for any delay/loss of documents or correspondences sent by courier/post.
- ❖ All corrigenda, addenda, amendments and clarifications to the Vendor Empanelment will be hosted in web page (www.bhel.com) → Tender Notification → View Corrigendum
- ❖ BHEL reserves the right to :-
 - delete, modify, rename etc any of the Groups, Categories, Codes, Conditions, procedures etc given in the Empanelment documents

- reject any application on the basis of unsatisfactory performance of the vendor in any ongoing job or any similar job in the last seven years or for furnishing false information/declaration in the application
 - Withhold the issue of Application for Empanelment and also subsequently the Tender documents to any Empanelled Vendor, and also annul the Empanelment process without assigning any reasons whatsoever.
 - Obtain confirmation from the principals, Owner to verify the contents of the supporting documents submitted by the applicant
- ❖ Procedure for submission of application and evaluation by BHEL is detailed in the documents
 - ❖ **Vendors previously registered /working with PSWR Nagpur are also required to comply with this notice for Empanelment.**
 - ❖ Detailed verification shall be carried out by BHEL later. However additional information as and when required by BHEL shall be produced by the applicant.

IMPORTANT NOTE:

1. Applications submitted after month of SEPTEMBER of any year shall necessarily include AUDITED ACCOUNTS for the PREVIOUS FINANCIAL YEAR (i.e. Applications submitted after 30/09/2009, Audited Accounts of FY 08-09 shall have to be submitted, and so on)
2. THIS VENDOR EMPANELMENT ENDEAVOUR IS ONLY FOR PRODUCTS AND **NOT FOR WORKS**

Nagpur

Dy. General Manager (Purchase)
BHEL: PSWR:

INTRODUCTION:

ABOUT BHEL :-

Bharat Heavy Electricals Limited, a Public Sector Undertaking, is the largest engineering and manufacturing enterprise in India in the energy related/infrastructure sector, today. BHEL was established more than 50 years ago when its first plant was set up at Bhopal, ushering in the Indigenous Heavy Electricals Equipment Industry in India – a dream that has been realized with a well recognized track of performance. The company has been earning profits since 1971-72 and paying dividends since 1976-77.

BHEL has acquired certifications to the Quality Management Systems (ISO 9001), Environment Management Systems (ISO 14001) and Occupational Health & Safety Management Systems (OHSAS 18001) and is well on its journey towards Total Quality Management.

BHEL has installed equipments for over 90,000 MW of power generation for utilities, captive and industrial users.

BHEL's operations are organized around three business sectors, namely Power, Industry and overseas business.

To serve the customer better, four Power Sector Regions were formed as Business Centres. Power Sector Western Region headquartered at Nagpur primarily covers the states of Gujarat, Maharashtra, Madhya Pradesh, Chattisgarh and Goa in the installation of Power Plants.

VENDOR EMPANELMENT

BHEL-PSWR intends to source & empanel the technically competent, quality conscious, financially sound probable suppliers who can meet our prequalification requirement listed as under. Product categories for enlistment are listed as per Section-I enclosed.

Interested vendors for the respective product categories who are able to comply the above requirement may login on our website www.bhel.co.in and download the supplier registration form from the web site & submit the same duly filled in and supplemented with all relevant documents to us for further processing as per laid procedures of BHEL-PSWR.

GUIDELINES FOR FILLING UP VENDOR EMPANELMENT FORM and OTHER CONDITIONS

1. This Vendor empanelment methodology has been devised for easy data capturing, analysis and for eventual empanelment. Vendors are requested to go through the entire procedure and fill up all information asked for and attach all the documents/evidences as specified against each.
2. The Vendor Empanelment Form has the following five Sections

Section-I: CATEGORIES FOR VENDOR EMPANELMENT.

- i) This section contains the entire list of 'CATEGORIES' for which vendors are proposed to be empanelled through this endeavor. Refer the Consolidated technical specification as per **Section V.**
- ii) Kindly tick (☑) against the relevant 'CATEGORY' for which the Applicant wants to be Empanelled.

Section-II: GENERAL REQUIREMENT & CONDITIONS FOR EMPANELMENT

It includes the general requirement & criteria for vendor empanelment. It provides a consolidated set of criteria which has to be met by vendor for the products they are applying for.

Section-III: SUPPLIER REGISTRATION FORM

It has a two parts namely Organizational Information and Quality Systems. These forms are devised in such a way to acquire the essential information so as to make the assessment objectively.

Section-IV: VENDOR EVALUATION

This section has two parts and deals with the Evaluation Procedure for Vendor empanelment:

- Part A : Organizational Soundness
- Part B : Quality
- Part C : Technical Competence

Vendors are evaluated against specified parameters for two (2) aspects viz Organizational Soundness, Quality and Technical Competence as detailed in Part A, B & C. The Empanelment criteria and the final Recommendation for Vendor Empanelment are defined in Part D.

Section-V: CONSOLIDATED TECHNICAL SPECIFICATIONS OF PRODUCTS CATEGORIZED

- i) It lists out the range of products and Technical Specifications of the products for which empanelment is to be done.
- ii) Vendor's production or supply range needs to be fulfilled against the respective product category in order to be considered for empanelment.

3. GENERAL

- i) Applicants desirous of **applying for more than one code** may kindly refer "PROCEDURE FOR SUBMISSION"
- ii) Please fill up the form neatly and clearly in BLOCK LETTERS
- iii) All columns are to be filled up. Do not leave any column blank. If a particular item is not pertinent to your Organization, please write "Not applicable" or "N.A".
- iv) Kindly provide correct, complete and precise information in the designated column or space provide therein. Please attach separate sheet in case the space provided is insufficient
- v) Incomplete, partially complete, not clearly filled forms giving in correct information are liable to be rejected without any consideration.
- vi) Any information/clarification required by BHEL during evaluation must be provided expeditiously
- vii) Submission of this empanelment forms do not automatically guarantee for empanelment in BHEL. BHEL also does not take any responsibility for loss of any Application form in transit.
- viii) BHEL reserves the right to call for additional information and/or check, verify all the information furnished in the application. BHEL also reserves the right to inspect all premises / facilities to confirm the authenticity of information furnished / capabilities mentioned in the application.

- ix) BHEL reserves the right to reject applications on the basis of furnishing false information/declaration in the application.
- x) BHEL reserves the right to reject any or all the applications without assigning any reasons whatsoever.
- xi) Please fill up the Check list
- xii) BHEL's decision shall be final on all matters
- xiii) **Bidder to note that Application for Empanelment with conditions unacceptable to BHEL shall be rejected.**

4. **CLARIFICATION:**

Any clarification with respect to Vendor empanelment may be obtained from

Shri S. M. Borkar

DGM/Purchase

BHEL Nagpur

Phone:0712-3048639, Fax: 0712-3048605

Email: smborkar@bhelswr.co.in

Shri Vivek Kumar Kamal

Sr.Engineer/Purchase

BHEL Nagpur

Phone:0712-3048636, Fax: 0712-3048605

Email: vivekf@bhelswr.co.in

5. **EVALUATION PERIOD:**

Scrutiny of applications shall commence yearly as per following schedule:

- April of every year : for applications received from 1st April of previous year to 31st March of the evaluating year.

After receipt of completed application forms from a vendor, BHEL shall endeavor to complete the evaluation process in three (3) months time in case no further documents are required, and six (6) months in case further documents/clarification is required.

6. **Suspension of Business dealings**

- 6.1 BHEL reserves the right to take action against supplier who fails to perform or indulge in malpractices, by suspending business dealings with them.
- 6.2 Suspension could be in the form of 'Hold', 'De-listing' or 'Banning' a Vendor.
- 6.3 A bidder may be put on HOLD for a period of 6 months, for future Enquiries for specific works on the basis of one or more of the following reasons:
 - a) Bidder does not honor his own offer or any of its conditions within the validity period.
 - b) Bidder fails to respond against three consecutive enquires of BHEL.
 - c) After placement of order, Bidder fails to execute a Order.
- 6.4 A Bidder may be de-listed from the list of registered Bidders of the region for a period of 1 year on the basis of one or more of the following reasons:-
 - a) Bidder tampers with tendering procedure affecting ordering process or commits any misconduct which is contrary to business ethics.
- 6.5 A Bidder can be banned from doing any business with all Units of BHEL for a period of 3 years on the basis of one or more of the following reasons:
 - a) Bidder is found to be responsible for submitting fake/ false/ forged documents, certificates, or information prejudicial to BHEL's interest.
 - b) Bidder is found to be involved in cartel formation
 - c) The Bidder has indulged in malpractices or misconduct such as bribery, corruption and fraud, pilferage etc which are contrary to business ethics.
 - d) The Bidder is found guilty by any court of law for criminal activity/ offences involving moral turpitude in relation to business dealings.
 - e) The Bidder is declared bankrupt, insolvent, has wound up or been dissolved; i.e. ceases to exist for all practical purposes.
 - f) Bidder is found to have obtained Official Company information/ documentation by questionable means.
 - g) Communication is received from the administrative Ministry of BHEL to ban the Bidder from business dealings.
- 6.6 Contracts already entered with a contractor before the date of issue of order of 'HOLD' or 'DE-LISTING' shall not be affected.
- 6.7 Once the order for suspension is passed, existing offers/new offers of the contractor shall not be entertained
- 6.8 The above guidelines are not exhaustive but enunciate broad principles governing action against contractors

PROCEDURE FOR SUBMISSION

1. The vendors are required to submit the Application form and relevant annexure in a sealed cover as per procedure given below:
 - i. Sign all pages of this booklet and fill up all pages from 10 to 24
 - ii. Use additional sheets wherever necessary
 - iii. Enclose relevant supporting documents/Registration certificates as called for in the application form
2. **Enclosures for Envelope/Sealed Cover**
 - a) This envelope shall be prominently superscripted as follows
“APPLICATION FOR VENDOR EMPANELMENT FOR PRODUCTS”
 - b) The following shall be enclosed in this envelope
 - i. Application Form for Empanelment
 - ii. Declaration by Authorized Representative along with copy of valid Power of Attorney
 - iii. Signed Copy of Vendor Empanelment Document Issue form
 - iv. Filled up Section-I (Filled up ‘CATEGORIES FOR VENDOR EMPANELMENT’)
 - v. Filled up Section-III (SUPPLIER REGISTRATION FORM) along with all relevant enclosures/documents
 - vi. Signed Section-V (CONSOLIDATED TECHNICAL SPECIFICATIONS OF PRODUCTS CATEGORIZED) for the products which the empanelment is sought
3. **Vendors desirous of Empanelment for more than one ‘CODE’ in the same ‘CATEGORY’:**
 - Tick(☒) against all the required ‘CODES’ in Section-I (CATEGORIES FOR VENDOR EMPANELMENT)
4. **Vendors desirous of Empanelment for more than one CATEGORY:**
 - Tick (☒) against all the required ‘CODES’ in Section-I (CATEGORIES FOR VENDOR EMPANELMENT)
 - Relevant supporting documents for the each product category should be attached for each applying product.

Application for Empanelment

To
DGM (PURCHASE)
BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR – WESTERN REGION
SHREEMOHINI COMPLEX
345-KINGSWAY
NAGPUR 440 001

Dear Sir,

SUB : Application for Vendor Empanelment for Products

I/we hereby submit our application for empanelment with BHARAT HEAVY ELECTRICALS LIMITED, POWER SECTOR-WESTERN REGION, NAGPUR. The 'Categories' of products for which empanelment is sought have been ticked (☒) as listed in 'SECTION-I. All documents as per 'Procedure for Submission'.

I/we have carefully perused the application documents and I/we hereby give our unqualified acceptance to the procedure adopted by BHEL for Empanelment. I also understand that BHEL reserves the right to withhold my application for empanelment, issue Tender documents to any empanelled vendor, and also annul the empanelment process without assigning any reasons whatsoever.

I/we shall submit additional documents whenever asked for by BHEL.

I am also enclosing the 'Declaration by Authorised Applicant' along with valid power of Attorney

SIGNATURE OF AUTHORISED
APPLICANT

PLACE:

DATE:

Enclosures:

- i) Declaration by Authorized Applicant
- ii) All other documents for Vendor Empanelment along with enclosures/attachments

DECLARATION BY AUTHORISED APPLICANT

1	Name of Authorized Applicant of the company seeking Registration	
2	Designation of Applicant	
3	Name of Company for which seeking Registration	
4	Head office Address Tel No: Fax No: Email: Web site:	

I hereby certify that all information and data furnished by me with regard to Vendor Registration/Empanelment are true and complete to the best of my knowledge. I further certify that I am duly authorized representative of the above mentioned company and a valid Power of Attorney to this effect is enclosed

Signature of Authorized Applicant
With name and address

Place:
Date:

SECTION – I: CATEGORIES FOR VENDOR EMPANELMENT.

<u>SL. No.</u>	<u>CATEGORY CODE</u>	<u>CATEGORY</u>	<u>SUB- CATEGORY CODE</u>	<u>Tick(☑) against all the required 'CODES'</u>
1	CH	*CHEMICALS	CH-01 AMMONIATED EDTA	<input type="checkbox"/>
			CH-02 AMMONIA SOLUTION	<input type="checkbox"/>
			CH-03 HYDRAZINE HYDRATE	<input type="checkbox"/>
			CH-04 DISODIUM HYDROGEN PHOSPHATE	<input type="checkbox"/>
			CH-05 TRISODIUM PHOSPHATE	<input type="checkbox"/>
			CH-06 HYDROCHLORIC ACID	<input type="checkbox"/>
			CH-07 SODIUM NITRITE	<input type="checkbox"/>
			CH-08 MORPHOLINE	<input type="checkbox"/>
			CH-09 RODINE - 213 SPECIAL	<input type="checkbox"/>
			CH-10 RINOPOL JET-100	<input type="checkbox"/>
2	IP	*INDUSTRIAL PAINTS	IP-01 SYNTHETIC ENAMEL	<input type="checkbox"/>
			IP-02 ALIPHATIC POLYURETHANE	<input type="checkbox"/>
			IP-03 CHLORINATED RUBBER BASED	<input type="checkbox"/>
			IP-04 EPOXY- HIGH BUILD FINISH	<input type="checkbox"/>
			IP-05 HEAT RESISTANT PAINT	<input type="checkbox"/>
			IP-06 BITUMINOUS PAINT	<input type="checkbox"/>
3	ST	*STEEL ITEMS	ST-01 - WIRE ROPES	<input type="checkbox"/>
			ST-03 - ROUND BARS	<input type="checkbox"/>
			ST-02 - GI FLAT	<input type="checkbox"/>
			ST-04 - GS WIRE	<input type="checkbox"/>
			ST-05 - GI STRANDED WIRE	<input type="checkbox"/>
			ST-06 - GS ROD	<input type="checkbox"/>
			ST-07 - GS PLATE	<input type="checkbox"/>
			ST-08 – CS PIPES & FITTINGS	<input type="checkbox"/>
4	CRS	CRANE SPARES	CRS-01 - TATA 955 ALC CRANE SPARES	<input type="checkbox"/>
5	IE	INDUSTRIAL ELECTRICAL EQUIPMENTS	IE-01 - AIR BLOWER	<input type="checkbox"/>
6	IT	*IT HARDWARES#	IT-01 - ROUTERS	<input type="checkbox"/>
			IT-02 - SIGNAL CONVERTERS	<input type="checkbox"/>
			IT-03 - IP PHONES	<input type="checkbox"/>
			IT-04 - UPS	<input type="checkbox"/>
7	EME	*ELECTRONICS / MEASURING & TESTING INSTRUMENTS	EM-01 - MARSHALLING BOX	<input type="checkbox"/>
			EM-02 - MULTI-METER	<input type="checkbox"/>
			EM-03 - OSCILLOGRAPHIC RECORDER	<input type="checkbox"/>

<u>SL. No.</u>	<u>CATEGORY CODE</u>	<u>CATEGORY</u>	<u>SUB- CATEGORY CODE</u>	<u>Tick(✓) against all the required 'CODES'</u>
			EM-04 - VIBROMETER	<input type="checkbox"/>
			EM-05 - VIBRATION ANALYSER	<input type="checkbox"/>
			EM-06 - RELAY TEST KIT	<input type="checkbox"/>
			EM-07 - MICRO OHM METER	<input type="checkbox"/>
			EM-08 - WALKIE-TALKIE	<input type="checkbox"/>
			EM-09 - INSULATION TESTER	<input type="checkbox"/>
			EM-10 - MULTI FUNCTION CALIBRATOR	<input type="checkbox"/>
			EM-11 - PRESSURE TRANSMITTER	<input type="checkbox"/>
			EM-12 - SOUND LEVEL METER	<input type="checkbox"/>
			EM-13 - TRANSFORMER TEST KIT	<input type="checkbox"/>
			EM-14 - TEMPERATURE SENSOR	<input type="checkbox"/>
			EM-15 - DIGITAL TACHO METER	<input type="checkbox"/>
			EM-16 – DECADE RESISTANCE BOX	<input type="checkbox"/>
			EM-17 – 3 PHASE VARIAC	<input type="checkbox"/>
			EM-18 – EARTH RESISTANCE TESTER	<input type="checkbox"/>
			EM -19 - HART COMMUNICATOR	<input type="checkbox"/>
			EM-20 - DEW POINT MEASUREMENT INSTRUMENT	<input type="checkbox"/>
			EM-21 - CENTRIFUGE	<input type="checkbox"/>
			EM-22 - VENTURIMETER	<input type="checkbox"/>
			EM-23 - PITOT TUBE	<input type="checkbox"/>
8	MS	MISC.	MS-01 - PVC TARPAULINS	<input type="checkbox"/>
			MS-02 - RUBBER MAT	<input type="checkbox"/>

(REFER SECTION – V FOR FURTHER SPECIFICATIONS)

*- FOR THESE CATEGORIES, GIVEN LIST OF SUB-CATEGORIES ARE INDICATIVE ONLY. BIDDER SHALL BE CONSIDERED FOR THE SIMILAR TYPE OF NEW PRODUCT SUB-CATEGORY REQUIREMENTS, IF SAME FALL INTO THEIR PRODUCT RANGE. HENCE, BIDDERS ARE REQUESTED TO ATTACH THE PRODUCT CATALOGUE MENTIONING THE PRODUCT RANGE WITH THE RELEVANT IS STANDARDS.

- INDICATES HIRING OF PRODUCTS AND NOT SUPPLIES

SECTION - II: GENERAL REQUIREMENT & CONDITIONS FOR EMPANELMENT

Various Parameters of Pre-Qualification Requirement (PQR):

- a. Vendor should be a (i) Manufacturer Or (ii) Authorized dealer of Manufacturer of the product they are supplying.
- b. Vendor should have minimum three years of experience in supply of relevant products.
- c. Vendor should have sufficient financial soundness.
- d. Vendor's products quality standards have to meet international or Indian quality standards relevant to the product category.
- e. Vendor enlistment in other units of BHEL shall be considered for similar product.
- f. PQR criteria should be supported by appropriate documents. BHEL may verify the authenticity of the documents from the originator if necessary.
- g. Vendor shall fill **Supplier registration Form.**

Qualifications and enlistment of vendors for product wise shall be done by BHEL-PSWR according to the PQR mentioned in this document.

Documents required:

(It is a consolidated list only; you are requested to provide all relevant documents in respect of product you are applying for)

- 1. Vendor shall submit Authorization certificate or certificate for manufacturer.
- 2. At least 3 Purchase Order copies to be submitted of prominent customer compromising of customer's name, address, year of supply order value, contact person's name & contact details including e-mail address related to product.
- 3. Financial Information (profit and loss account, Balance sheet duly signed by CA etc) for last three consecutive years.
- 4. Latest valid ISO certificate, if you are ISO certified.
- 5. Vendor Code and Items, if you are registered with any other unit/region of BHEL.
- 6. Technical Catalogue, Brochure or literature of the items for which vendor are seeking empanelment
- 7. Organization chart.
- 8. Bidder shall submit the technical acceptance as per Section-V for the product for which bidder is seeking registration.

SECTION: III SUPPLIER REGISTRATION FORM

Page 1 of 10

PART- A: ORGANISATIONAL SOUNDNESS

ALL COLUMNS SHOULD BE PROPERLY FILLED IN THE SPACE PROVIDED FOR, WHEREVER IT IS NOT APPLICABLE, PLEASE WRITE "NOT APPLICABLE". INCOMPLETE OR INCORRECT FORMS MAY NOT BE CONSIDERED. **PLEASE ATTACH SEPARATE SHEET, IF SPACE AVAILABLE IS INADEQUATE. INFORMATION WITH * MARKS IS SCOREABLE.**

ALL THE PAGES OF THE FORM ARE TO BE SIGNED ALONGWITH SEAL BY THE AUTHORISED SIGNATORY

<u>ORGANISATIONAL INFORMATION</u>				
<u>NAME AND CORRESPONDENCE ADDRESS OF THE SUPPLIER SEEKING REGISTRATION :-</u>				
<u>1.0 PRODUCTS FOR WHICH REGISTRATION IS APPLIED FOR(PI Choose from Annexure-I) :</u>				
<u>SL. NO.</u>	<u>SUB-CATEGORY CODE</u>	<u>DESCRIPTION</u>	<u>SIZE & RANGE</u>	<u>MFG. STD/ IS / DIN /BS ETC.</u>
<u>SUPPLIER'S AUTHORISED SIGNATORY</u>				
				<u>BHEL</u>

BHARAT HEAVY ELECTRICALS LIMITED

SUPPLIER REGISTRATION FORM

(SECTION: III)

ORGANISATIONAL INFORMATION

2.0 GENERAL INFORMATION :

2.1 NAME OF THE

WORKS/DIVISION :

ADDRESS :

E - Mail :

TELEPHONE : Landline:

Mobile:

FAX :

2.2 NAME OF CHIEF EXECUTIVE / PROPRIETOR /PARTNER & ADDRESS :

2.3 DETAILS OF AUTHORISED SIGNATORY FOR SEEKING CLARIFICATION :

NAME :

DESIGNATION :

E - Mail :

TELEPHONE : Landline

Mobile

FAX :

SUPPLIER'S AUTHORISED SIGNATORY

BHEL

BHARAT HEAVY ELECTRICALS LIMITED

SUPPLIER REGISTRATION FORM

(SECTION: III)

Page 3 of 10

ORGANISATIONAL INFORMATION

3.0 OWNERSHIP INFORMATION:

DOCUMENTS TO BE FURNISHED

3.1 GOVT. OF INDIA UNDERTAKING:

OR

STATE GOVT. UNDERTAKING :

OR

LIMITED COMPANY :

MEMORANDUM AND
ARTICLES OF ASSOCIATION

OR

PRIVATE COMPANY :

MEMORANDUM AND
ARTICLES OF ASSOCIATION

OR

CO-OPERATIVE SOCIETY :

SOCIETY RULES AND
BYE LAWS

OR

PARTNERSHIP FIRM :

PARTNERSHIP DEED

OR

PROPRIETORSHIP :

PROFESSION TAX REGN.
AND MUNICIPAL REGN.

ANY OTHER (SPECIFY) :

3.2 NATURE OF BUSINESS :

(MANUFACTURING UNIT/
ENGG CONSULTANT/ EPC CONTRACTOR)

(AGENTS/ DISTRIBUTORS/STOCKISTS/DEALERS/
TRADERS/ INDIAN SUBSIDIARY/ CHANNEL PARTNER – attach authorization
certificate of principal)

3.3 YEAR OF ESTABLISHMENT :

*** 3.4 YEAR OF COMMENCEMENT OF BUSINESS :**

SUPPLIER'S AUTHORISED SIGNATOR

BHEL

BHARAT HEAVY ELECTRICALS LIMITED

SUPPLIER REGISTRATION FORM

(SECTION: III)

Page 4 of 10

ORGANISATIONAL INFORMATION

4.0 REGISTRATION PARTICULARS

(FURNISH DETAILS AND ENCLOSE COPY OF CERTIFICATE FOR THE FOLLOWING)

4.1 PERMANENT ACCOUNT NO :
4.2 CENTRAL SALES TAX REGN NUMBER :
4.3 STATE SALES TAX / TIN NUMBER :
4.4 EXCISE DUTY REGN NUMBER :
4.5 EXCISE CONTROL CODE NUMBER :
4.6 SERVICE TAX REGN NUMBER :
4.7 CATEGORY AS PER MSMED ACT : MICRO/ SMALL/ MEDIUM
REGN NO. :
VALID UPTO :
(Attach Certificate)

SUPPLIER'S AUTHORISED SIGNATORY

BHEL

BHARAT HEAVY ELECTRICALS LIMITED
SUPPLIER REGISTRATION FORM(SECTION: III)

Page 5 of 10

ORGANISATIONAL INFORMATION

5.0 OTHER PARTICULARS:

(FURNISH DETAILS AND ENCLOSE DOCUMENTARY EVIDENCE/ COPY OF CERTIFICATE FOR THE FOLLOWING)

* 5.1 IF THE COMPANY IS ALREADY REGISTERED WITH ANY OF BHEL UNITS GIVE:

5.1.1. BHEL UNIT'S NAME:

5.1.2. SUPPLIER REGN. CODE NO. :

5.1.3. ITEMS FOR WHICH REGISTERED & THEIR SPECIFICATION
(ENCLOSE PROOF OF SUCCESSFUL EXECUTION OF
ONE OR MORE PURCHASE ORDERS):

* 5.2 IS THE COMPANY APPROVED BY
ASME / NTPC / NPC / EIL / DGS&D / RAILWAYS /
IBR / LLOYDS ETC FOR INTENDED
MATERIAL CATEGORY? : YES / NO
(ENCLOSE DOCUMENTARY EVIDENCE)

* 5.3 IS THE COMPANY ISO 9001 APPROVED? : YES / NO
(ENCLOSE CERTIFICATE & TOC OF QUALITY SYSTEM) :

* 5.4 IS THE COMPANY AN ISO 14000 APPROVED? : YES / NO
(ENCLOSE CERTIFICATE):

* 5.5 ARE THE COMPANY OHSAS - 18000 APPROVED? YES / NO
(ENCLOSE CERTIFICATE)

* 6.6 TECHNICAL COLLABORATOR :
(FOREIGN OR INDIGENOUS)
(ENCLOSE DOCUMENTARY EVIDENCE)

5.7 DIRECTORS / PARTNERS, IF RELATED TO ANY
BHELEMPLOYEE.
NAME :
STAFE NO. :
DESIGNATION :
Unit & DEPARTMENT:
RELATIONSHIP:

SUPPLIER'S AUTHORISED SIGNATORY

BHEL

BHARAT HEAVY ELECTRICALS LIMITED
Vendor Empanelment for Products

Page 19 of 67

BHARAT HEAVY ELECTRICALS LIMITED

SUPPLIER REGISTRATION FORM

(SECTION: III)

Page 6 of 10

ORGANISATIONAL INFORMATION

5.8 IF ANY EX-BHEL PERSONNEL IS EMPLOYED BY THE COMPANY, MENTION HIS / HER DETAILS OF LAST POSTING.

NAME :
STAFF NO. :
DESIGNATION :
UNIT & DEPARTMENT :
DATE OF LEAVING SERVICE :

5.9 EXPERIENCE LIST:

(ATTACH LIST OF PRESENT CUSTOMERS WITH NAME & ADDRESS FOR OFFERED / SIMILAR TYPE&SIZEOFITEM / EQUIPMENTFOR WHICH REGISTRATION HAS BEEN SOUGHT ANDWITH WHOM YOUHAVE CONTINUOUS BUSINESS SINCE LAST THREE YEARS . ALSO ATTACH PURCHASE ORDER COPY.)

5.10 DETAILS OF PENDING LEGAL ISSUES ON CONTRACTUAL ASPECTS WITH CUSTOMER, IF ANY

5.11 The following information of Bank Account of the Company, duly endorsed by the Bank (required for Electronic Fund Transfer –EFT/RTGS) is to be submitted

1. Name of the Company
2. Name of Bank
3. Name of Bank Branch
4. City/Place
5. Account Number
6. Account type
7. IFSC code of the Bank Branch
8. MICR Code of the Bank Branch
9. Details of other Bankers (for reference purpose only)

NOTE:

(i) Suppliers who have already submitted the above information are requested to submit a copy of the same.

SUPPLIER'S AUTHORISED SIGNATORY

BHEL

BHARAT HEAVY ELECTRICALS LIMITED

SUPPLIER REGISTRATION FORM

(SECTION: III)

Page 7 of 10

ORGANISATIONAL INFORMATION

6.0 INSPECTION & TESTING FACILITIES:

*** 6.1 LIST OF INSPECTION & TESTING FACILITIES / EQUIPMENT**

SL. NO	DESCRIPTION OF FACILITY/ EQUIPMENT & CAPACITY	NOS.	MAKE & YEAR OF MANUFACTURING	LAST DATE OF CALIBRATION
IN CASE OF SPACE LIMITATION ENCLOSE ANNEXURE / CATALOGUE WITH TAG				

*** 6.2 IF IN-HOUSE TESTING FACILITIES NOT AVAILABLE, INDICATE SOURCE OF TESTING ALONGWITH THEIR FACILITIES & EXPERIENCE**

SL. NO	TEST	SOURCE OF TESTING	DESCRIPTION OF FACILITY/ EQUIPMENT & CAPACITY	APPROVAL OF EQUIPMENT/ PROCESS/PERSONNEL QUALIFICATION
IN CASE OF SPACE LIMITATION ENCLOSE ANNEXURE / CATALOGUE WITH TAG				

SUPPLIER'S AUTHORISED SIGNATORY

BHEL

BHARAT HEAVY ELECTRICALS LIMITED**SUPPLIER REGISTRATION FORM****(SECTION: III)**

Page 8 of 10

<u>ORGANISATIONAL INFORMATION</u>					
FINANCIAL INFORMATION FOR THE PREVIOUS FOUR YEARS					
7.0	Paramete	Year 1	Year 2	Year 3	
		(Years in ascending order, Money value in Rs.)			
7.1	CASH PROFIT				
7.2	NET WORTH				
7.3	IFR/NCLT case OR "SICK"	Referred to IFR/NCLT OR declared "SICK" by any Statutory Authority(YES / NO)			
<p>NOTE: 1. Copies of annual accounts (Balance Sheet) for the last three years (or from date of incorporation whichever is less) along with audit report are to be submitted. The above details shall be highlighted in the Balance Sheet.</p> <p>2. Status of Tax assessments done under various laws (Income Tax, VAT/Sales Tax, Excise & Service Tax, Custom) and details of disputes pending, if any, with these authorities to be submitted.</p>					
<u>SUPPLIER'S AUTHORISED SIGNATORY</u>				<u>BHEL</u>	

BHARAT HEAVY ELECTRICALS LIMITED

SUPPLIER REGISTRATION FORM

(SECTION: III)

Page 09 of 10

ORGANISATIONAL INFORMATION

8. LIST OF ENCLOSURES (Tags to be put on enclosures):

- (i) MEMORANDUM AND ARTICLES OF ASSOCIATION
/ SOCIETY RULES AND BYE LAWS / : YES /
PROFESSION TAX REGN & MUNICIPAL REGN.
- (ii) Copy of certificate of following:-
 - ☐ PERMANENT ACCOUNT NO : YES / NO
 - ☐ CENTRAL SALES TAX REGN NUMBER : YES / NO
 - ☐ STATE SALES TAX / TIN NUMBER : YES / NO
 - ☐ EXCISE DUTY REGN NUMBER : YES / NO
 - ☐ EXCISE CONTROL CODE NUMBER : YES / NO
 - ☐ SERVICE TAX REGN NUMBER : YES / NO
 - ☐ REGN NUMBER OF CATEGORY AS PER : YES / NO
- (iii) ORGANISATION CHART : YES / NO
- (iv) If registered with any other BHEL Unit,
 - ☐ LETTER OF REGISTRATION WITH BHEL UNIT : YES / NO
 - ☐ PROOF OF SUCCESSFUL EXECUTION OF
MORE PURCHASE ORDERS : YES / NO
- (v) Letter of approval from ASME / NTPC / NPC / EIL /
DGS&D : YES / NO
- (vi) Accreditation certificate for
 - ☐ ISO: 9001 : YES / NO
 - ☐ TOC of Quality System Manual : YES / NO
 - ☐ ISO : 14000 : YES / NO
 - ☐ OHSAS , ISO 18000 : YES / NO
- (vii) Letter regarding technical collaboration : YES / NO
- (viii) Experience List / Performance certificate : YES / NO
- (ix) Balance Sheet for the last four years along with audit : YES / NO
- (x) Principal's authorization in case of dealers/ agents : YES / NO
- (xi) EFT Bank's certificate : YES / NO

I /WE GIVE THE UNDERTAKING THAT BHEL DRAWINGS & SPECIFICATIONS SHALL NOT BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL AND/ OR FOR SUPPLY OF ANY MATERIAL, PRODUCT OR SERVICES DIRECTLY OR INDIRECTLY TO ANY OTHER CUSTOMER.

SUPPLIER'S AUTHORISED SIGNATORY

BHEL

Page 10 of 10

Sl. No	PARAMETERS	SYSTEM IN EFFECT (Tick if exists & provide evidences if ticked in)		RECORDS (Tick if available & submit evidences)	REMARKS
		Written Procedure	Practice		
1	Manufacturing / Testing Procedure Qualification				Procedure Qualification specification may be submitted
2	Calibration system				Submit list of instrument & their calibration status
3	System of Storage, Preservation , Painting & packing				Copy of procedure to be submitted
4	Purchase order for the similar product and Proof of Completion Certificate				Submit PO copy and Work completion certificate or the LR Copy or invoices as the proof of work
<p><u>SUPPLIER'S AUTHORISED SIGNATORY</u></p> <p style="text-align: right;"><u>BHEL</u></p>					

SECTION-IV
VENDOR EVALUATION
(TO BE FILLED BY BHEL)

Part A: ORGANISATIONAL SOUNDNESS

Sl. No.	PARAMETER	QUALIFICATION CRITERIA	EVALUATION BY BHEL
1	NET WORTH: (from audited figures for the LATEST FINANCIAL YEAR)	Should not be less than 50% of Paid up Share Capital in case of Companies	
3	CASH PROFIT: (From Audited figures of Profit After Tax + Non Cash Expenditure like Depreciation)	Should have made Cash profit in any one of the three preceeding FINANCIAL YEARS	
4	BIFR/NCLT case OR "SICK"	Should NOT have been referred to BIFR/NCLT or declared "SICK" by any Statutory Authority	
6	Remarks if any :		
7	<u>Signature of evaluation committee:</u>		

SECTION-IV
VENDOR EVALUATION
(TO BE FILLED BY BHEL)

Part B: QUALITY:

CATEGORY CODE: _____

SUB CATEGORY CODE: _____

<u>Sl. No</u>	<u>PARAMETERS</u>	<u>SYSTEM IN EFFECT</u>	
		<u>AVAILABLE</u>	<u>NOT AVAILABLE</u>
1	Manufacturing / Testing Procedure Qualification		
2	Calibration system		
3	System of Storage, Preservation , Painting & packing		
4	Purchase order for the similar product and Customer feedback		
REMARKS BY BHEL			
<div> <div>QUALIFIED</div> <div>NOT</div> </div>			

(NOTE: - THIS EVALUATION SHALL BE DONE FOR EACH SUB-CATEGORY, THE VENDOR HAS APPLIED FOR REGISTRATION/EMPANELMENT.)

SECTION-IV
VENDOR EVALUATION
(TO BE FILLED BY BHEL)

Part C: TECHNICAL:

<u>Sl no</u>	<u>PARAMETER</u>	<u>QUALIFICATION CRITERIA</u>	<u>EVALUATION BY BHEL</u>	
1	BASIC REQUIREMENT	Should fulfill the CONSOLIDATED TECHNICAL SPECIFICATIONS AS PER <u>Section-V</u> OF PRODUCTS CATEGORIZED for the Product CATEGORY for which empanelment is sought <u>Note:</u> To be evaluated for every 'CODE' for which 'Empanelment' sought	<u>CATEGORY & sub-CATEGORY Code :</u> i	
			ii	
			iii	
			iv	
			v	
			vi	
			vii	
			viii	
			ix	
			x	
			xi	
			xii	
2	Adequacy of Inspection, Measuring and Testing Equipments (owned by the Company)	Adequately available OR Available for the major part		
3	Remarks if any :			

**SECTION-IV
VENDOR EVALUATION
(TO BE FILLED BY BHEL)**

Part D: FINAL RECOMMENDATION

Name of VENDOR :	
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Table-1 CRITERIA for VENDOR EMPANELMENT (for each CATEGORY/SUB-CATEGORY CODE)

SI no	Evaluation of Vendor for Empanelment	ASSESSMENT CRITERIA		
		Organisational Soundness	Quality	Technical Capability
1	RECOMMENDED	QUALIFIED	QUALIFIED	QUALIFIED
2	NOT RECOMMENDED	IF NOT QUALIFIED FOR EVEN ANY ONE OF THE ABOVE ASPECTS		
3	Further Review ###	IN CASE OF "HOLD" ON ANY ASPECT OR IF FURTHER DETAILS REQUIRED		

: These Organisations shall be reviewed once again before final recommendation for empanelment

Table-2 RECOMMENDATION FOR EMPANELMENT OF VENDOR

SI No	CATEGORY	SUB-CATEGORY	CODE	Recommendation of BHEL
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

SECTION - V: CONSOLIDATED TECHNICAL SPECIFICATIONS OF PRODUCTS CATEGORIZED

SL. No.	CATEGORY CODE	CATEGORY	SUB-CATEGORY CODE	BRIEF DESCRIPTION OF ITEM	STANDARD SPECIFICATIONS
1	CH	*CHEMICALS	CH-01	AMMONIATED EDTA	a) Concentration of ammoniated EDTA shall be 40% W/W Min as active EDTA b) pH=9.0 - 9.8 MIN c) Specific Gravity = 1.18
			CH-02	AMMONIA SOLUTION	IS 799-1990
			CH-03	HYDRAZINE HYDRATE	IS 12086-1991
			CH-04	DISODIUM HYDROGEN PHOSPHATE	IS 566-1991
			CH-05	TRISODIUM PHOSPHATE	IS 573-1992
			CH-06	HYDROCHLORIC ACID	IS 265-1993
			CH-07	SODIUM NITRITE	AS PER RELEVANT STANDARD
			CH-08	MORPHOLINE	AS PER RELEVANT STANDARD
			CH-09	RODINE - 213 SPECIAL	AS PER RELEVANT STANDARD
			CH-10	RINOPOL JET-100	AS PER RELEVANT STANDARD
2	IP	*INDUSTRIAL PAINTS	IP-01	SYNTHETIC ENAMEL	AS PER IS:2932
			IP-02	ALIPHATIC POLYURETHANE	AS PER IS:13213
			IP-03	CHLORINATED RUBBER BASED	NA
			IP-04	EPOXY- HIGH BUILD FINISH	IS:14589
			IP-05	HEAT RESISTANT PAINT	AS PER IS:13183 SUITABLE UPTO 600 ⁰ C
			IP-06	BITUMINOUS PAINT	AS PER IS:158 1981
3	ST	*STEEL ITEMS	ST-01 - WIRE ROPES	WIRE ROPES OF DIA 19mm, 24mm, 26mm AS PER SPECIFICATION MENTIONED IN ANEX	AS PER ANNEXURE-A
			ST-03 - ROUND BARS	VARIOUS SIZES FROM (8MM TO 40MM)	AS PER IS 432/ IS 2062
			ST-02 - GI FLAT	GS FLAT (65X8, 50X6,25X6,25X3)	As per relevant IS Standard
			ST-04 - GS WIRE	GS WIRE 8 SWG	As per relevant IS Standard
			ST-05 - GI STRANDED	GI STRANDED WIRE 8 SWG	As per relevant IS Standard

SL. No.	CATEGORY CODE	CATEGORY	SUB-CATEGORY CODE	BRIEF DESCRIPTION OF ITEM	STANDARD SPECIFICATIONS
			WIRE		
			ST-06 - GS ROD	GS ROD (20mm)	As per relevant IS Standard
			ST-07 - GS PLATE	GS PLATE 150X150X6, GI MS SHEET 14 SWG	As per relevant IS Standard
			ST-04 – CS PIPES & FITTINGS	CS SMLS PIPES & FITTINGS LIKE BENDS, EQUAL TEE, UNEQUAL TEES etc.	Pipes as per SA106 - NB 40-350 or Equivalent SCH-40 FITTING as per relevant standard for 40-350 NB
4	CRS	CRANE SPARES	CRS-01 - TATA 955 ALC CRANE SPARES	SPARE FOR REPAIR & OVERHAULING OF CRANES	AS PER PART NOS OF MANUFACTURER
5	IE	INDUSTRIAL ELECTRICAL EQUIPMENTS	IE-01 - AIR BLOWER	HEAVY DUTY AIR BLOWERS FOR ESP	AS PER ANNEXURE-B
6	IT	*IT HARDWARES#	IT-01 - ROUTERS	CISCO ROUTERS	AS PER ANNEXURE-C
			IT-02 - SIGNAL CONVERTERS	G.703 to V.35 Converter/ Modem	AS PER ANNEXURE-D
			IT-03 - IP PHONES	CISCO-7960G IP Phone	AS PER ANNEXURE-E
			IT-04 - UPS	1000VA UPS	AS PER ANNEXURE-F
7	EME	*ELECTRONICS / MEASURING & TESTING INSTRUMENTS	EM-01 - MARSHALLING BOX	6,12,24,36,48 WAY MARSHALLING BOX	
			EM-02	MULTI-METER	AS PER ANNEXURE-G
			EM-03	OSCILLOGRAPHIC RECORDER	AS PER ANNEXURE-H
			EM-04	VIBROMETER	AS PER ANNEXURE-I
			EM-05	VIBRATION ANALYSER	AS PER ANNEXURE-J
			EM-06	RELAY TEST KIT	EMC: Emission CE conform, IEC 801-2/3/4, FCC Subpart B of Part 15 Class A Immunity EN 55011/3.1991/groupe 1/class A Safety: IEC 1010-1, UL 3111-1, EN 61010-1, EN 60950+A1:1993-05
			EM-07	MICRO OHM METER	AS PER ANNEXURE-K
			EM-08	WALKIE-TALKIE	AS PER ANNEXURE-L
			EM-09	INSULATION TESTER	AS PER IEEE 43:2000

SL. No.	CATEGORY CODE	CATEGORY	SUB-CATEGORY CODE	BRIEF DESCRIPTION OF ITEM	STANDARD SPECIFICATIONS
			EM-10	MULTI FUNCTION CALIBRATOR	AS PER ANNEXURE-M
			EM-11	PRESSURE TRANSMITTER	AS PER ANNEXURE-N
			EM-12	SOUND LEVEL METER	AS PER ANNEXURE-O
			EM-13	TRANSFORMER TEST KIT	AS PER ANNEXURE-P
			EM-14	TEMPERATURE SENSOR	AS PER ANNEXURE-Q
			EM-15	DIGITAL TACHO METER	AS PER ANNEXURE-R
			EM-16	DECADE RESISTANCE BOX	AS PER ANNEXURE-S
			EM-17	3 PHASE VARIAC	AS PER ANNEXURE -T
			EM-18	EARTH RESISTANCE TESTER	AS PER ANNEXURE –U
			EM -19	HART COMMUNICATOR	AS PER ANNEXURE –V
			EM-20	DEW POINT MEASUREMENT INSTRUMENT	AS PER ANNEXURE –W
			EM-21	CENTRIFUGE (OIL PURIFICATION UNIT)	AS PER ANNEXURE –X
			EM-22	VENTURIMETER	AS PER ANNEXURE –Y
			EM-23	PITOT TUBE	AS PER ANNEXURE –Z
8	MS	MISC.	MS-01	PVC TARPAULINS	AS PER ANNEXURE -AA
			MS-02	RUBBER MAT	AS PER IS-5424

*- FOR THESE PACKAGES, GIVEN LIST OF SUB-CATEGORYS ARE INDICATIVE ONLY. BIDDER SHALL BE CONSIDERED FOR THE SIMILAR TYPE OF NEW PRODUCT SUB-CATEGORY REQUIREMENTS, IF SAME FALL INTO THEIR PRODUCT RANGE. HENCE, BIDDERS ARE REQUESTED TO ATTACH THE PRODUCT CATALOGUE MENTIONING THE PRODUCT RANGE WITH THE RELEVANT IS STANDARDS.

- INDICATES HIRING OF PRODUCTS AND NOT SUPPLIES

ANNEXURE – A (STEEL WIRE ROPE)

<u>SL.NO</u>	<u>DESCRIPTION</u>	<u>DIMENSION</u>
01	WIRE ROPE DIA	19,24,26 MM
02	MINIMUM BRAKING LOAD	AS PER OUR REQUIREMENT (228-489 KN)
03	CONSTRUCTION	AS PER OUR REQUIREMENT
04	MAIN CORE	IWRC
05	TENSILE STRENGTH OF WIRE	AS PER OUR REQUIREMENT (1960 – 1770 N/mm sq)
06	WIRE ROPE GOVERNING SPEC.	IS:2266/2002
07	FINISH	UNGALVANISED, PRE FORMED
08	LAY	RIGHT /LEFT REGULAR LAY

1. WIRE ROPE SHALL BE SUPPLIED IN SINGLE LENGTH
2. VARIATION IN LENGTH IS PERMITTED AS “+ 1% “ AND “- ZERO %” WHILE SUPPLYING THE MATERIAL
3. WIRE ROPE IS TO BE PACKED IN CUSTOMARY WOODEN DRUM REINFORCED WITH STEEL RODS, STRIPS, AND WASHERS ETC.
4. SUITABLE PROTECTIVE SURFACE COATING SHALL BE APPLIED BEFORE REEVING THE ROPE ON PACKING DRUM.

ANNEXURE – B

TECHNICAL SPECIFICATION OF THE ESP AIR BLOWER WITH MOTOR

1) FAN:

TYPE : HCMB-3 050
FLOW : 20000 M³ /HR
SPEED : 2640 RPM
PRESSURE : 7000 PASCAL
POWER : 46.5 KW
DENSITY : 1.2 KG/CM³ AT 200 DEG°C

Outlet orientation of the ESP Air Blower shall be "Clockwise Top Horizontal CW90"

2) MOTOR WITH STARTER 415 VOLT 3 PHASE, 50 Hz AC TEFC STAR-DELTA STARTING,
HORIZONTAL

FOOT MOUNTED MOTOR AS PER IS: 325 SUITABLE TO DRIVE THE ABOVE BLOWER.

3) SCOPE OF SUPPLY: THE SUPPLY SCOPE FOR THE VENDOR SHALL COVER THE
FOLLOWING-

- 1) BLOWER
- 2) MOTOR
- 3) BASE FRAME
- 4) COUPLING
- 5) FOUNDATION BOLT
- 6) SUITABLE CAPACITY STARTER
- 7) MANUALLY OPERATED DAMPER AT SUCTION SIDE OF BLOWER

ANNEXURE-C TECHNICAL SPECIFICATION FOR CISCO ROUTER (PAGE1/2)

<u>S.NO.</u>	<u>PARAMETER / FEATURE</u>	<u>MINIMUM BHEL REQUIREMENTS</u>
1	Make & Model	Cisco 1841, IOS Image: IP Base, IOS Version: 12.4(20)T
2	Router Architecture	The router architecture should have following features
		Should be based on high speed RISC processor
		Should be a multi-service capable router supporting data and voice (pass through)
3	Interface Modules Supported	Minimum 2 Fast Ethernet 10/100Mbps ports, V.35 WAN interfaces, ISDN BRI Interface, Console interface. Should support onboard integration modules for providing hardware based VPN encryption and IPS functionalities.
4	Ports Required	The following ports should be available from day one.
		1 Nos. of V.35 Serial Ports
		2 Nos. of Fast Ethernet (10/100) RJ-45 ports
		1 No. Console Port
5	Memory Required	128MB DRAM or higher
6	Flash Memory Required	32MB or higher
7	Router Functional Requirements	The router should come with the latest Operating System. The following features should be available from day one.
		Should support Standard Access Lists, Extended Access Lists & Named Access Lists.
		Should support Route Maps, Class Maps & Policy Maps.
		Class of Service, Prioritization, Policy based Routing and Low Latency Queuing, NBAR, etc.
		Network Address Translation (Static NAT, Dynamic NAT, PAT)
8	Routing Protocol Support Required	RIP (V1 & V2) , OSPF, BGP4, Policy based Routing, PPP, Multilink PPP
9	Multicasting and QoS	The router should have following multicasting and QoS features:
		Resource Reservation Protocol (RSVP)
		Support for WFQ, CAR , IP Precedence, DSCP
		Internet Group Management Protocol (IGMP)v1, v2 and v3
		Multicast Routing support such as Protocol Independent Multicast (PIM) v1 and v2
10	Performance Requirements	Should have packet forwarding rate (before encryption) of at least 70,000 64 byte packets per second on a single chassis.

<u>S.NO.</u>	<u>PARAMETER / FEATURE</u>	<u>MINIMUM BHEL REQUIREMENTS</u>
11	Management Features	Should support Telnet, SSH, TFTP and BOOTP protocols.
		Should support SNMP V1 & SNMP V2 for remote management.
		Should support NTP & RADIUS protocols
		Should support syslog
12	Operating System	Should come with the latest operating system supporting all the above features.
13	Mounting	The offered router should be rack mountable
14	Accessories	Should come with all necessary power cords, adapters, data cables, connectors, CDs, manuals, brackets accessories, etc, required for installation and commissioning of the equipment.
15	Warranty	OEM onsite / labour / parts warranty

(PAGE 2 OF 2)

ANNEXURE-D - G.703 TO V.35 CONVERTER/ MODEM (PAGE 1/2)

<u>S.NO.</u>	<u>PARAMETER / FEATURE</u>	<u>MINIMUM BHEL REQUIREMENTS</u>
1	Framing	256N (no MF, CCS) 256N (no MF, CCS) with CRC-4 256S (TS16 MF, CAS) 256S (TS16 MF, CAS) with CRC-4 Unframed
2	Bit Rate	2.048 Mbps
3	Line Code	AMI
	Zero Suppression	HDB3
	Line Impedance	120Ω, balanced 75Ω, unbalanced
	Jitter Performance	ITU G.823, ETSI TBR-12 and TBR-13
4	E1 Connectors	RJ-45, 8-pin, balanced Two BNC coaxial, unbalanced, using adapter cable
5	DATA PORTS Connectors	D-type, 25-pin, RS-530, female (converted via adapter cables to V.35, X.21, V.36/RS-449)
6	Throughput	4,000 pps
7	Timeslot Allocation	Consecutive (bundled) User-defined
8	Management Port	Interface: RS-232, 9-pin D-type, female Format: asynchronous Baud rate: 1.2–115.2 kbps, autobaud Character: 8-bit no parity, 7-bit odd or even parity
9	Data Port	Local loopback Remote loopback
10	Latency	300 μsec (64-byte frame size, 2M LAN rate)
11	System Clock	Internal clock: ±50 ppm Loopback timing: ±130 ppm External timing from data port: ±130 ppm

ANNEXURE-D - G.703 TO V.35 CONVERTER/ MODEM (PAGE 2/2)

<u>S.NO.</u>	<u>PARAMETER / FEATURE</u>	<u>MINIMUM BHEL REQUIREMENTS</u>
13	Power	AC/DC: 100 to 240 VAC, –48 to –60 VDC, nominal Power consumption: 5W max.
14	DIAGNOSTICS Main E1/T1 link	Local loopback Remote loopback BER test
15	WAN Protocol	HDLC
16	Compliance	ITU G.703, G.704, G.706, G.732, G.823, G.826
17	Performance Monitoring	Local support of CRC-4 Full statistical diagnostics according to RFC-1406
18	Environment	Temperature: 0°–50°C (32°–122°F) Humidity: Up to 90%, non–condensing
19	Accessories	Power cord and AC/DC adaptor plug
20	Warranty	3 Years OEM onsite / labour / parts warranty

ANNEXURE – E - CISCO-7960G IP PHONE

<u>S. NO</u> :	<u>PARAMETER / FEATURE</u>	<u>MINIMUM BHEL REQUIREMENTS</u>
1	Features	24+ user-adjustable ring tones
		G.711 and G.729a audio compression
		H.323 compatible and Microsoft NetMeeting compatibility
		An IP address assignment—DHCP client or statically configured
		Comfort noise generation and voice activity detection (VAD) programming on a system basis
		EIA/TIA RS-232 port for future add-on options such as line expansion, security access, and more
		Caller ID, Transfer, Hold
		On-hook, Off-hook, and Pre-dialing
		Message Waiting Indicator Lamp
		Ad-hoc Conferencing Compatible
		Integrated Ethernet Switch
		Speed Dial Buttons
		Separate Headset Port
		Speakerphone
		Additional Line Appearances
		ACD Queue Compatible
2	The phone also includes the following settings	· Display contrast
		· Ring type
		· Network configuration
		· Call status
3	Warranty	1 Year OEM onsite / labour / parts warranty

Annexure – F - UPS

Item Name		UPS 1000 VA
<u>S.N O</u>	<u>PARAMETER / FEATURE</u>	<u>MINIMUM BHEL REQUIREMENTS</u>
1	Model	1000 VA
2	Capacity	1000VA/600W
3	Input	Voltage Range - 160-270V Frequency - 45-65 HZ (Auto Sensing)
4	Output	Voltage - 230V Voltage Regulation(Battery Mode) - +/-5% Frequency - 50 HZ or 60 HZ Frequency Regulation(Battery Mode) - +/-1 HZ Output Waveform - Stepped Waveform Overload - 110% for 5 minutes as "Mains" mode
5	Battery	Battery Type & Number - 12V/7AH - 2 Pcs Backup Time(As per the loads) - 30 min typical(with 1 PC) Recharge Time - 8 hours to 90% after complete discharge
6	Transfer Time	Typical - 4-6 ms
7	Indicator(LED Bar Graph)	AC Mode - Green Lighting : The 1st green lighting ; the 2nd to 5th green gradually lighting indicating load capacity Backup Mode - Green flashing : The 1st green flashing ; the 2nd to 5th green gradually lighting indicating batteries capacity Fault - The red lighting
8	Audible Alarm	Backup Mode - Sounding every 10 seconds Low Battery - Sounding every second Overload - Sounding every 0.5 seconds Battery Replacement - Sounding every 2 seconds Fault - Continuously Sounding
9	Protection	Full Protection - Discharge, Overcharge, and overload protection
10	Physical	Dimension (mm), DxWxH - 369x141x181 Net Weight - 13.5 KG
11	Environment	Operating Environment - 0-40 C, 0-90% relative humidity (non-condensing) Noise Level - Less than 40 dB
12	Interface	RS-232 - Support Windows 98/NT/ME/2000/2003/XP, Linux, HP-UX, IBM AIX, Sun solaris, Unixware, Free BSD, Mac OS and Compaq true

ANNEXURE – G - MULTIMETER

<u>DESCRIPTION</u>	<u>SPECIFICATION</u>
VOLTAGE RANGE (AC & DC)	0-1000 V AC/DC WITH TRUE RMS (IN SUITABLE RANGES OF 0-200, 0-500 & 0-1000 V) ACCURACY: +/-0.25% OF READING
CURRENT RANGE AC & DC	0 TO 300 mA AND 0 to 10 A (IN SUITABLE RANGES OF 0-25 mA, 0-100mA, 0-300mA, & 0-10 A) ACCURACY: +/-0.75% OF READING
RESISTANCE RANGE	0 TO 500 MEGA OHMS A (IN SUITABLE SELECTABLE RANGES) ACCURACY: +/-0.75% OF READING
CAPACITANCE RANGE	0 TO 50,000 PICO FARADS (IN SUITABLE SELECTABLE RANGES) ACCURACY: +/- 1% OF READING
TEMPERATURE	-200 TO 1300° C, ACCURACY: +/- 1% OF READING
FREQUENCY RANGE	0 TO 1 MHZ ACCURACY: +/-0 .005 OF READING
DIODE TEST	2.00/0.001 V ACCURACY:1% OF READING
AUTO RANGE FUNCTIONALITY	
DISPALY	4 & 1/2 DIDGIT LCD DISPLAY OR BETTER
CARRYING CASE	
ACCESSORIES : INCLUDED & OPTIONAL LIST TO BE FURNISHED	
CALIBRATION : THE INSTRUMENT SHOULD BE CALIBRATED AT NABL ACC.LAB BEFORE DELIVERY AND	
CALIBRATION CERTIFICATE BY SUPPLIER SHALL NOT HOLD WELL.	

ANNEXURE-H TECHNICAL SPECIFICATION OF OSCILLOGRAPHIC RECORDER

Measurement Input:

- a) Type
 - 4 Channels
 - floating unbalanced input, I/O isolation for each channel
- b) Mode
 - DC Grounded
- c) Range
 - 100mV to 1000 V in steps of 13 steps
- d) Measurable range
 - $\pm 100\text{mV}$ to $\pm 1000\text{ V}$ steps of 13 steps
- e) Accuracy
 - $\pm (1\% \text{ of FS} + 1\text{ mV})$
- f) Can be set to zero at any position with null function
- g) Frequency Input
 - DC to 40 K Hz
- h) Low pass filter
 - 5 Hz to 500 Hz – 3 steps
- i) Noise
 - (with filter off & 10 mV/Div/shorted = 2mV p-p)
- j) Sampling Speed
 - 400 ks/ sec.
- k) Input Imp.
 - $1\text{ M}\Omega \pm 1\%$, 5 pf.
- l) Input terminal
 - Safety terminal for banana plug

Memory Function:

- a) Time axis
 - 200 $\mu\text{ s/div}$ to 2 min /dv selectable
- b) Resolution
 - 1/80 of time axis
- c) Recording length
 - 10,20,50,100,200,400 div.
- d) Max. memory div blocks
 - 32
- e) Auto function
 - Printing, Statistical calculation, saving.
- f) Two cursor function
 - X2
- g) Zoom function
 - X axis to X/1000
 - Y axis X5, X2, X1, 1/2X

Recording:

- a) Paper
 - 111 mm x 10 meters with effective length of 104mm
- b) Feed accuracy
 - $\pm 3\%$
- c) Speed selection
 - 2 Sec. to 1 hr/Div. in steps

Printing Function:

- a) Prints
 - Settings, units, time, chart speed, Ch No. TAG, Trigger time
- b) Prints comments in 100 mm length
- c) Prints channel No. or TAG on waveform

Power supply:

- Alkaline Drycells + AC Adapter

Accessories:

- Standard + Optional required for use should be quoted.

ANNEXURE – I PORTABLE VIBROMETER

Sl. No	Description	Specification
1	Measurement range	20,200,2000 microns peak to peak
a	Displacement	20,200,2000 mm/sec peak
b	Velocity	
2	Frequency Range	
a	Displacement	300 to 60,000 cpm
b	Velocity	300 to 60,000 cpm
3	Accuracy	1% of full scale range
4	Input/Output	
a	Input	Velocity sensor
b	Output	LCD Digital Display or Analog display
5	Power supply requirement	Battery powered
6	Carrying Case	Required
7	Calibration Certificate	From NABL Accredited laboratory
8	Other requirement	The bidder must have supplied similar model to reputed organisation in the last two years and the bid must accompany customer reference and certificate for satisfactory performance.

ANNEXURE – J - DUAL CHANNEL VIBRATION ANALYZER

<u>SI.N</u>	<u>FEATURES</u>	<u>SPECIFICATIONS</u>
1	Operational Requirement	<ol style="list-style-type: none"> Instrument must be capable of carrying out the 'Vibration Analysis' and 'Balancing' of Hydro, Thermal & Gas Power generating machines including any other rotating equipment. And also must be capable of measuring 'Shaft & Bearing Housing Vibration'. Instrument must be capable of recording data of Vibration, Velocity, Displacement & Speed of all Power generating machines. It should have capability for analyzing data for time & frequency domain and real time data capture & display. Instrument should be capable of analyzing Overall Vibration, Time signal & phase, FFT, Live Spectrum, Bode plots, Orbits etc. Instrument should be capable of accepting signals from all standard type of vibration probes. Instrument should be portable i.e. comfortable for carrying. There should be facility to 'Store' data & 'Transmit' data to PC.
2	Accessories Required	<ol style="list-style-type: none"> Non-contact Pick-ups (For 'Shaft Vibration') with extension leads. ---6 Nos. Vibration Pick-ups (For measuring 'Bearing Housing Vibration' of frequency range from 1 Hz to 10 KHz) with magnetic base & cable --- 3 Nos. Extension leads (20 Meters Length) for Vibration Pick-ups --- 3 Nos. DC supply for all non-contact Pick-ups. Proximity meters --- 6 Nos. Cables (20 Meters Length) from 'Proximeter to Instrument'. --- 6 Nos. Hard carrying case with provision for keeping manuals, probes, cables etc. Photocell (For Speed & Phase Measurement) --- 2 Nos. Extension cable (10 Meters Length) for Photocell --- 1 No. 10 Points 'Selector Switch Box' for 'Velocity Pick-ups & Non Contact Pick-ups' having 2 Nos. parallel output signal terminals with inbuilt 24 V DC supply and connecting cable to the instrument.
3	Power Supply Back-up its operating time.	The instrument should have rechargeable battery back up with min. 6 to 8 hours of continuous operation.
4	Frequency Range of Instrument.	0 to 20 K Hz
5	Other Requirements	<ol style="list-style-type: none"> Calibration Certificates of Instrument.. Instruction Manual. Hard carrying case with lockable arrangement. Guarantee /Warranty Certificates. Service center India. Supplier should provide calibration facility. Commissioning, testing & training of personal at purchaser's office.

ANNEXURE – K MICRO OHM METER

- Measurement:- Resistive as well as Inductive Loads.
- Resistance range

4 range 199.9 milliohms, 1999 microohms, 19.99 milliohms, 199.9 milliohms

test current	Multiplier setting		
	low	med	high
200,100,50,20	199.9micro	1999micro	19.99 milli
10,5	1999 micro	19.99milli	199.9 milli

- Resolution:-
 - 0.1 micro ohms in 0-199.9 microohms range.
 - 1 micro in 0-1999 microohm range.
 - 10micro in 0-199.99milli range.
 - 100 micro in 0-199.9 milli.
- Accuracy:-
 - +/- 1% of Reading +/- 5 DIGITS on all ranges.
- Measuring current:-
 - 100A DC 3min ON—15minOFF.
 - 100A DC 3min ON—15minOFF.
 - 50ADC 6min ON –15 OFF.
 - 5 to 20 A DC continuous.
- Displays & continuous:-
 - 3 ½ panel meter to show resistance & current through switch.
 - Warning indicator for over range of current.
 - Over temp trip indicator.
 - Milli/micro ohm indicator.
 - DC current Amp indicator.
- Control & switch:-
 - Switch to select resistance/current.
 - Switch to select range for resistance.
 - Power on indicator.
 - Switch to select.
 - Fuse on front panel.
 - Independent current & potential terminals.
- Open circuit:-
 - Measuring voltage 8 VDC.
 - Operating temp 0 to 45DegC.
 - Power 230 V.
- Power cord, instruction manual & measurement cord
- Calibration Certificate of instrument.
- Guarantee/ Warranty certificate.

Supplier to indicate other optional accessories

ANNEXURE – L - WALKIE TALKIE

TECHNICAL SPECIFICATION OF UHF TRANSRECEIVER HAND HELD SET	
Sl.No.	GENERAL TECHNICAL DETAILS
1	Synthesized UHF 10 Channel capable of two way portable Transreceiver with 1-4 watt adjustable RF out put , communication range 4 KM Maximum ,with rapid charger with high capacity rechargeable battery & battery charger suitable for 230 AC Volt 50 HZ power supply .The set should have features such as adjustable programmable power level, Synthesized & field programme, Multiple Coded Squelch capability PI/DPL , Timer out timer, full bandwidth operation , channel spacing 12,5 kHz / 25 kHz , battery saver / low battery monitoring , Belt & Clip provision etc. (Make & Model of MOTOROLA & KANWOOD are only acceptable)
2	The make / model offered should be with open frequency band and frequency band width should be approved by Wireless Planning & Co-ordination Wing of Ministry of Communication Govt of India.Tenderer shall submit a copy of confirmation from the appropriate statutory authority / government notification for the open frequency band width and further frequency allotment is not required in case sets are moved placed to place within India .
3	The sets are intended to be used at our construction project site in the vicinity of metallic structure height around 100 Mtrs , other structural covered buildings , surrounding of extra high voltage lines, and set should be capable to communicate from ground level to 100 mtrs above from ground level . Tender shall demonstrate the performance with voice clarity at one the project site as per BHEL.
4	Tenderer should have valid Authorized Dealership license from the original manufacturer or from their Indian sole representative. A copy of the license should be submitted along with the offer.
5	Tenderer should submit their offer as per Guideline & Rules of Wireless Planning & Co-ordination Wing of Ministry of Communication Govt of India.
6	Tenderer shall arrange license for the sets supplied in the Name of "Bharat Heavy Electricals Limited , Power Sector western region , Nagpur" from Wireless Planning & Co-ordination Wing of Ministry of Communication Govt Of India
7	Tenderer shall remit all the statutory fees to W.P.C. as applicable towards license / Royalty , however the same shall Reimburse by BHEL at actual on submission the proof for remittance
8	It is the responsibility of the Tenderer to do all necessary lisioning with W.P.C. towards obtaining the license on behalf on BHEL within the quoted rate.
9	Tenderer shall demonstrate the features of the set at BHEL Site location.

ANNEXURE-M

TECHNICAL SPECIFICATION FOR HAND HELD MULTIFUNCTION CALIBRATOR

HAND HELD MULTIFUNCTION CALIBRATOR FOR USE AS A SOURCE AND MEASURE FOR VOLTAGE, CURRENT, RESISTANCE, THERMOCOUPLE AND RESISTANCE TEMPERATURE DETECTOR.

DETAILED SPECIFICATION:

<u>PARAMETER</u>	<u>RANGE</u>	<u>ACCURACY</u>	<u>RESOLUTION</u>	<u>REMARK</u>
DC Voltage	0-100mV	0.02%	1micro V	
	0-1V	0.02%	10 micro v	
	0-10V	0.02%	0.1mV	
	0-30V	0.02%	10mv	
DC mA	4-22mA	0.02%	1 micro Ampere	
Resistance	0-500ohm	0.02%	0.01 ohm	
	0-5 kohms	0.05%	0.1ohm	
	0-50 kohms	0.1%	1 ohm	
RTD (PT 100)	-200 to 850 Deg C	0.025%	0.1Deg C	
RTD (JPT 100)	-200 to 500 Deg C	0.025%	0.1 Deg C	
Thermocouple K, E, J, T, N, L, U, R, S, B	Standard	0.02%	0.1 Deg C	

Measurement Unit Maximum input: 42V DC and 120 mA

Current Terminal Input Protection: 125mA, 250V

Serial Interface RS232

Display: Segmented LCD

Power Supply: Battery with charger

Accessories: Source lead cables, measurement lead cable, carrying case, fuse, terminal adapter, alkaline batteries, user manual, calibration certificate, O&M Manual and carrying case

ANNEXURE – N - PRESSURE TRANSMITTERS (Page 1/2)

RANGE PRESSURE TRANSMITTERS

- a) 0-10 KG/cm² (a-d are absolute transmitters)
- b) 0-60 KG/cm²
- c) 0-250 KG/cm²
- d) 0-780 mm HG
- e) 0 – 2.5 KG/cm² DP Transmitters

Detailed Specification

TECHNICAL SPECIFICATION OF ABSOLUTE PR.TRANSMITTER

Absolute Pressure transmitter

- : Scalable Absolute Pressure transmitter
- : Accuracy $\pm 0.1\%$ of span inclusive of Linearity, Hysteresis and Repeatability
- Rangeability 200 :1
- Stability $\pm 0.2\%$ of URL for Ten years with limited 12 years warranty
- Primary Pressure Range 0 to 56 Kg/Sq.cm A
- : Isolating diaphragm and Process connection material – 316 L SST
- : Process connection style , 1/2 -inch NPT female
- : 4-20 mA with digital HART protocol
- : Mounting bracket, 2 inch pipe in 316 SST
- : Suitable 3 way valve manifold (SS)
- : Calibration Certificate

Response time	: 100 ms
Update rate	: 22 times per second
Power Supply	: 24 V DC (10.5 to 42.4 V DC)
Fill fluid	: Silicon Oil
Process temperature limit	: 121 deg "C" Ambient 85 deg "C"
Humidity limits	: 0 to 100 % rh
Enclosure rating	: Low copper aluminium IP66

ANNEXURE – N PRESSURE TRANSMITTERS (Page 2/2)

DP TRANSMITTER TECHNICAL SPECIFICATION

<u>DESCRITPION</u>	<u>TECHNICAL SPECIFICATION</u>
ACCURACY	± 0.05 % OF SPAN INCLUSIVE OF LINEARITY, HYSTERESIS AND REPETABILITY OR BETTER
RANGEABILITY	200:1
RESPONSE TIME	100 ms
STATIC PRESSURE LIMIT	254 KG/SQ.CM
POWER SUPPLY	10.5 TO 42.4 V DC
PROCESS TEMPERATURE LIMIT	121 DEG "C" AMBIENT 85 DEG "C"
HUMIDITY LIMIT	0 TO 100% rh
LOCAL INDICATION	LCD METER, 5-DIGIT, 3-LINE, BAR GRAPH, PV ENGG UNIT, %
PRIMARY PRESSURE RANGE	-2.53 TO + 2.53 KG/SQ.CM
CALIBRATION RANGE	0 TO 2.5 KG/SQ.CM
OUTPUT	4-20mA
PROCESS CONNECTION	½ INCH NPT (FEMALE)
5-WAY MANIFOLD WITH EQUALISER	NON-INTEGRAL TYPE, SS316

ANNEXURE – O - SOUND LEVEL METER

Portable Noise / Sound level meter conforming to IEC60651 with standard accessories and detailed traceable calibration certificate with 'A' and 'C' weighing scale.

<u>DESCRIPTION</u>	<u>TECHNICAL SPECIFICATION</u>
RANGE	30 to 140dB
OPERATING TEMPERATURE	0 to 40 °C
DISPLAY	4 DIGIT DISPLAY
RESOLUTION	0.1 dB
ACCURACY	+/- 1 dB or better
MAX/MIN HOLD FUNCTION	YES
AC/DC SIGNAL OUTPUT	YES
POWER SUPPLY	9V BATTERY
ACCESSORIES	A) Carrying case B) Calibration screw driver C) Instruction Manual D) Batteries E) Windscreen

ANNEXURE-P (PAGE-1/5)
Specification for Transformer Test Kit

A. GENERAL SPECIFICATIONS:

1. A single unit should be capable of testing of Current Transformers, Voltage Transformers, Power Transformers and contact resistance Circuit Breakers.
2. The equipment should be portable. It should be suitable for on-site measurement and easy for transportation.
3. It should have built-in computer for its operation along with built-in LCD display and non-volatile memory for storing at least 300 results. The stored results should not be lost if input power supply to the test kit is interrupted.
4. The test current, voltage & frequency should be electronically generated and shall be completely independent of the input voltage & frequency fluctuations.
5. The test set should be able to test Current Transformers for its Ratio (by Primary Current Injection method) with test current of at least up to 800A AC (up to 2000A with or without external hardware), Polarity, Ratio & Phase angle errors, Knee-point voltage and Current (as per applicable standards), Secondary winding resistance, Secondary burden etc. If external hardware is necessary, the same shall be supplied at no extra cost. High Current Cables of at least **9m** length shall be supplied along with the kit for primary injection of 800A.
6. The test set should be able to test Large Power transformers for turn-ratio, winding resistance, Excitation Current. The turns-ratio measurement shall be completely automatic and three-phase measurement. If any external hardware required, same shall be supplied. Any other tests on transformer, if can be performed by the same test equipment, can be quoted as optional.
7. The kit shall be able to measure and record the per tap measurements of turns-ratio, errors of ratio & phase angles and excitation current to avoid manual recording of the test results. It should be possible to record measurements of at least 20 taps of each phase in a single test file.
8. The kit shall be able to measure and record the per tap measurements of Winding resistance (wherever applicable). It should also be able to detect any problem with On-load tap changer OLTC) & its operation.
9. The kit should have automatic safe discharge feature after the test for the safety of the operating personnel. The test kit should have audio/visual indication for the current flow and safe discharge.
10. The test kit should be able to measure the static contact resistance of the Circuit breakers with test current of at least 200A. The test lead of at least 9m length shall be supplied.
11. The test set shall also be able to measure Ground resistance with or without any additional accessories. If any accessories required, the same shall be supplied without any additional cost.
12. The same test system should also be capable of measuring Capacitance and Tan δ (dissipation factor) of Power transformers, bushings, circuit breakers and other high voltage electrical apparatus. If any additional external hardware is required, the same shall be offered. The external hardware shall be of the same make. The test set should be fully automatic without any need for manual balancing.
13. The test set should be able to measure & display Capacitance, Tan delta, Power factor, test voltage, charging current, power loss etc. of the specimen under test.
14. The method used for interference suppression should be "Variable Frequency" and NOT by polarity reversal method or by injection of opposite interference signal. i.e. The test voltage shall be applied at two different frequencies (one above & one below the line frequency) and the kit should automatically display the test result corresponding to 50Hz. No manual calculation shall be required.

ANNEXURE-P (PAGE-2/5)
Specification for Transformer Test Kit

15. The test voltage & frequency should be electronically generated and shall be completely independent of the input voltage & frequency fluctuations. The frequency range of the test signal shall be from 15 ... 100Hz.
16. The test set should be able to output voltage up to 12 kV. The test voltage should be automatically applied to the test object up to the preset value with no manual control required. The test set should also automatically discharge the test object after the completion of the test.
17. The current output of the test set should be at least 100mA continuous and 300mA intermittent at 10kV.
18. The test equipment should be capable of measuring capacitance values of at least 95 nF at 10kV without any range extenders.
19. It should be possible to mount the whole test system along with the test leads on a transport trolley, which shall be a part of the supply at no extra cost.
20. The test set should have safety monitoring system to ensure perfect grounding of test system and audio/visual alarm while the test is under progress.
21. It should be possible to download the results from the test kit to an external Laptop/PC either through Ethernet/USB port. It should also have the facility to download the results to a pen drive directly from the test kit.
22. Necessary software shall be supplied to download the results from the test kit to external PC/Laptop. The software should be Windows based and also be able to convert the results to EXCEL/MS WORD or any other format.
23. The test report should be generated automatically with date & time stamped.
24. **The test kit shall meet all the relevant safety specifications as per applicable national/international standards. Relevant type test certificates from a reputed certification agency shall be enclosed.**
25. The kit shall be easy to operate and user friendly.
26. The kit shall be supplied in a sturdy transport case with wheels for easy transportation. The cables & other accessories can be supplied in a soft carry bag.
27. On-site technical training on use of the test set should be provided.
28. The bidder shall have facility to provide necessary after-sales service support in India.

B. TECHNICAL SPECIFICATIONS:

CURRENT TRANSFORMER:

Current Output:

Range	:	up to 2000A AC
Resolution	:	10mA or better
Accuracy	:	0.2% of reading \pm 0.2% of Full scale or better

Phase Angle:

Range	:	0 to 180 degree
Resolution	:	0.1 degree or better
Accuracy	:	0.2 degree or better

Winding resistance:

Range	:	1m ohms to 100 ohms with automatic range switching
Accuracy	:	1% of reading or better

Knee-point voltage:

Range	:	up to 2000V
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ANNEXURE- P (PAGE-3/5)
Specification for Transformer Test Kit

Resolution : 1 V or better
Accuracy : 0.5% or better

TRANSFORMER:

Turns-ratio:

Range : 1 ... 2000 or better
Resolution : 0.01 or better
Accuracy : 0.5% or better
Test voltage : up to 2000V

Phase Angle:

Range : 0 to 180 degree
Resolution : 0.1 degree or better

Accuracy : 0.2 degree or better

Winding resistance:

Range : 1m ohms to 100 ohms with automatic range switching
Accuracy : 1% of reading or better
Test Current : up to 50 Amps or more

Contact Resistance:

Range : 1 micro Ohms to 10m Ohms
Resolution : 0.1micro Ohms or better
Accuracy : 1% or better
Test Current : 200A minimum

Technical Specifications for Capacitance & Tan Delta measurement:

1. **Voltage Output** : 0 to 12 KV
2. **Current Output** : 100 mA continuous
300 mA intermittent
3. **Voltage Measurement** :
Range : 0 to 12 kV AC
Resolution : 1V or better
Accuracy : +/- 1% or better
4. **Current Measurement** :
Range : 0 to 5 Amps AC
Resolution : 1 μ A or better
Accuracy : +/- 0.5% or better
5. **Test Frequency** :
Range : 15 400Hz
Resolution : 0.01Hz or better
Accuracy : 0.1% of reading or better

ANNEXURE- P (PAGE-4/5)
Specification for Transformer Test Kit

6. Capacitance :

Range : 1 pF to 95,000pF at 10kV
(up to 1 μ F @10kV with Resonating Inductors for testing large generators)
Resolution : 0.01pF or better
Accuracy : $\pm 0.5\%$ reading +1pF or better

7. Tan Delta (Dissipation Factor) :

Range : 0 – 100%
Resolution : 0.001% or better
Accuracy : $\pm 0.5\%$ of reading +0.02% or better

8. Power Factor :

Range : 0 – 100%
Resolution : 0.001% or better
Accuracy : $\pm 0.5\%$ of reading +0.02% or better

9. Inductance :

Range : 1 – 1000 kH
Resolution : 1 mH or better
Accuracy : 1% or better

C. Environmental Conditions:

Operating temperature : 0 to 50 deg C or better
Relative Humidity : up to 95% (non-condensing)
Storage Temperature-0-70 deg.C.

D. Input Power Supply:

- 1) 230V AC $\pm 10\%$, 1-phase, 50Hz $\pm 5\%$, with no loss of performance within this range. .
- 2) Connection as per IEC320/C20.
- 3) Display-LCD, Viewable in bright sun light.
- 4) Safety Standards EN61010-1, EN60905,50191, IEC 61010-1.
- 5) Electromagnetic compatibility(EMC)-EN50081,55011,61000-3-2,EN50082-2,IES61000-4-2/3/4/8,CE confirm 89/336/EEC

E. Accessories to be supplied along with the kit:

The test system shall be offered complete with the following:

- Main equipment(s)
- Attachments for Turns-ratio/Winding resistance/Contact resistance/Ground Resistance measurement (if any additional hardware necessary)
- High Current cables of at least 9m length for Primary Current injection and Contact resistance measurements.
- AC Power cord of at least 2m length
- High voltage (2kV) shielded cables of at least 10m length.

BHARAT HEAVY ELECTRICALS LIMITED
Vendor Empanelment for Products

ANNEXURE- P (PAGE-5/5)
Specification for Transformer Test Kit

- Measurement cables of at least 10m length.
- Necessary HV cable (12kV), double-shielded, for Capacitance & Tan Delta measurement of at least 18 meters.
- All necessary cables & accessories including connection clamps for Capacitance & Tan Delta measurement.
- Grounding cables

- All necessary Connectors/ Clamps/accessories (if not specified above) required for testing as mentioned in technical specifications.
- Hard carrying case with wheels for the equipment for easy transportation.
- Instruction/operation manual (in English)
- Necessary software in CD for data downloading/ printing/ converting the test results to any other format.
- Transport trolley
- Sturdy transport cases with wheels for main equipments.

ANNEXURE –Q – IR TEMPERATAURE SENSOR

Temperature range	: 20°C (68°F) to > 900°C (1652°F)
Accuracy	: ± 1% of reading or ± 1°C whichever is greater at 23°C ±5°C ambient operating temperature.
Repeatability	: ± 0.5 % of reading or ± 1°C whichever is greater.
Distance to Spot (D:S)	: 60:1
Ambient operating temperature:	0°C – 50°C
Storage temperature	: 0°C – 50°C
Spectral response	: 8µm – 14µm
Power	: AA batteries or 9V, 200 mA DC power supply.
Laser power	: Class II (< 1mW)
Display hold	: 7 sec.
Display	: 4 digit backlit LCD.
MAX, MIN, DIFF temperature:	yes
Accessories	: Carry case, Computer analog & printer cable, Calibration certificate.

ANNEXURE-R - DIGITAL TACHOMETER

A compact self-powered portable Hand held digital tachometer for measuring rotating object speed by the following methods

- by non-contact method
- by a suitable simple detachable adaptor in measuring in contact mode

Features:

- Measurement Range 0 to 99,999 RPM
- Minimum 5-Digit Display
- High resolution / Accuracy
- Max/Min Hold Function
- For Industrial use
- Battery condition 40 hrs type with LOW battery indicator
- Operating Temperature range 10 – 50 Deg C
- With protective carrying case & Instruction Manual

Technical Specifications:

Speed Range:	0 to 99,999
Resolution	0.1 RPM
Accuracy:	$\pm 0.01\% \pm 1$ digit RPM
Sampling time	Better than 1 seconds
Display	5 digit
General	
Power Requirement:	One piece 9V battery or set of AAA size batteries and auto power off function.

Standard Accessories

- Protective carrying case
- Rubber contact probes pin type and surface contact type
- Enough quality adhesive type reflective tape strips, if required.
- Remote sensor for non-contact remote measurement
- Required one set of batteries with spare one number
- Instruction manual
- Calibration certificate
- Guarantee / Warranty certificate

ANNEXURE –S

EARTH RESISTANCE TESTER

SPECIFICATIONS: -

Ingress protection	: - IP54
C stake, P stake and Noise check	: - Automatic
Noise Rejection	: - 40 V pk to pk
2-wire, 3wire, 4wire test	: - Yes, no shorting links required
No disconnect testing (ART)	: - Yes, with ICLAMP
Stakeless measurement	: - Yes, with ICLAMP and VCLAMP
Instrument output	: - Voltage: $\pm 25V$ or $\pm 50V$ at 94Hz, 105Hz, 111 Hz, & 128Hz Current: 4.5mA or 0.45mA or 0.045mA
Ground current range with clamp	: - 0.5mA to 19.9mA or better
Ground current accuracy	: - 5% ± 3 digits or better
Ground Voltage range	: - 0 to 100V ac or better
Ground Voltage accuracy	: - 2% $\pm 2V$ or better
Resistance range	: - 0.01 Ω to 200k Ω
Resistance accuracy	: - 2P measurements: 2% ± 3 digits or better 3P measurements: 2% ± 3 digits or better 4P measurements: 2% ± 3 digits or better ART measurements: 5% ± 3 digits or better Stakeless measurements: 7% ± 3 digits or better
Maximum probe resistance	: - Rp limit: 200k Ω (50V output voltage) Rc limit: 200k Ω (50V output voltage) Limits reduced to 100 k Ω for 25V output voltage Limits reduced to 5k Ω for 0.01 Ω resolution
Display	: - 3½ digit high contrast liquid crystal, backlit
Battery Type	: - DET4TC2: 8 off AA (LR6) cells DET4TCR2: 8 off AA (LR6) NiMH rechargeable cells
Operating Temperature Range	: - -15 $^{\circ}C$ to + 55 $^{\circ}C$ / 5 $^{\circ}F$ to 131 $^{\circ}F$
Storage temperature range	: - -40 $^{\circ}C$ to + 70 $^{\circ}C$ / -40 $^{\circ}F$ to 158 $^{\circ}F$
Safety	: - Complies with the requirements of EN61010-1 100V CAT IV between terminal pairs.
EMC	: - In accordance with IEC61326 including amendment No.1
Standards Compliance	: - Complies with requirements of KEMA K85B : - Complies with the following part of EN61557, “ Electrical safety in low voltage distribution systems up to 1000V ac and 1500 V dc – Equipments for testing ,measuring or monitoring of protective measures”. Part 1 – General requirements Part 5 – Resistance to earth
Weight	: - less than 1 kg
Calibration	: - The instrument should be calibrated at NABL Acc. lab before delivery & Calibration certificate Shall be send with instruments.
Guarantee/Warranty	: - Certificate required
Manual	: - Instruction manual required

ANNEXURE - T

SPECIFICATION FOR DECADE RESISTANCE BOX

1. Type : Portable
2. Function : Resistance Calibration standard
3. Decade :

Decade	Range	Max. Current
1	0 ohm to 10 ohm	700 Ma
2	10 ohm to 100 ohm	200 Ma
3	100 ohm to 1 kohm	70 Ma
4	1 kohm to 10 kohm	20 Ma
5	10 kohm to 100 kohm	7 Ma
6	100 kohm to 1 Mohm	1 Ma
7	1 Mohm to 10 Mohm	0.1 mA

4. Accuracy : 1%
5. Weight : Approx. 1 Kg
6. Cabinet : Wooden or plastic for better insulation

The instrument should be calibrated at NABL accredited laboratories. The calibration certificate is required to be submitted at the time of delivery

ANNEXURE - U
TECHNICAL SPECIFICATION OF 3 PHASE VARIAC(Enclosed Type).

Manual operated, Natural air cooled, suitable for indoor use, Ambient temperature 50deg.C

Input Voltage - 415V, AC, 3 Phase, 50Hz

Output Voltage - 0-470V AC, 3 Phase, Continuous variable

Capacity - 15 Amps

Calibration - The instrument should be calibrated at NABL Acc. lab before delivery & Calibration certificate shall be send with instruments.

Guarantee/Warranty - Certificate required

Manual - Instruction manual required

ANNEXURE – V

Technical Specification for HART Communicator

- 1.0 Universal type Handheld HART Communicator for calibration of HART compatible Electronic Transmitters for measurement of pressure, flow, Diff. pressure and other HART compatible devices like Level transmitters, control valves & Analysers etc.
- 2.0 Universal type Handheld HART Communicator shall meet or exceed the following requirements
 - 2.1 Memory: 16MB (minimum) to suit all HART foundation DDL with new device software up gradation / down loading option (3years min. from the date of guaranty/warranty expiry condition of the project).
 - 2.2 Operation shall be possible with NiMH batteries or 240VAC \pm 10%, 50Hz supply through power adapter & universal plug.
 - 2.3 Facility for data transfer through PC along with interface accessories like cable, software if applicable shall be offered etc.
 - 2.4 Operating temperature: 50°C.
- 3.0 Following accessories (Standard & Optional) shall be supplied, as minimum along with each communicator:
 - 3.1 Soft carrying case with adjustable shoulder strip & lead compartment inclusive of protective boot.
 - 3.2 HART leads – 1set
 - 3.3 250 ohm load resistor – 1No.
 - 3.4 NiMH batteries – 1set.
 - 3.5 NiMH battery charger set – 1No.
 - 3.6 Power adapter – 1No.
 - 3.7 Universal plug kit for power adapter – 1No.
 - 3.8 Standard banana jacks for HART
 - 3.9 Any other accessories to complete the equipment.

ANNEXURE – W
TECHNICAL SPECIFICATION FOR MOISTURE & DEW POINT METER

Data logger functions (optional)	Date, Time, Value, Units, Selectable sample Interval, sequential log, Simple communication Protocol for data dump, RS232 port for use in nonhazardous areas only.
Display Functions	Dew/frost point temperature: °F (°C), Ppm _v Pressure: psi(g), bar, kPa(g), kg/cm ² (g), Sensor signal (MH)
AC Power Supply	220 - 240 V AC, 50/60Hz
Rechargeable battery pack	Battery power for eight hour operation
Operating Temperature	(0 °C to 60 °C)
Storage Temperature	(-20 °C to 70 °C)
Configuration	Battery power portable Battery power portable with internal sample System
Moisture Measurement	
Sensor Type	Thin-film aluminum oxide
Operating and Storage Temperature	(-110 °C to 70 °C) or better
Dew/Frost Point Temperature	
Overall Calibration Range Capability	140 °F to -166 °F (60 °C to -110 °C)
Accuracy	± 3.6 °F (±2 °C) from 140 °F to -85 °F (60 °C to -65 °C)
	± 5.4 °F (±3 °C) from -87 °F to -166 °F (-66 °C to -
110 °C)	
Repeatability	± 0.9 °F (±0.5 °C) from 140 °F to -85 °F (60 °C to -
65 °C)	
110 °C)	
Response Time	± 1.8 °F (±1 °C) from -87 °F to -166 °F (-66 °C to -
	Less than 5seconds for a 63% step change in moisture Content in either wet-up or dry-down cycle
Gas Flow Range	From static to 10,000-cm/s linear velocity at atm
Options	Heavy-duty carrying case and additional Accessories.
Weight	less than 3Kg or better
Calibration	The instrument should be calibrated at NABL Acc. lab before delivery & Calibration certificate Shall be send with instruments.
Guarantee/Warranty	Certificate required
Manual	Instruction manual required

ANNEXURE – X

TECHNICAL SPECIFICATION OF CENTRIFUGE (OIL PURIFICATION UNIT)

- 1) Capacity : 1000 LPH at a separation temperature of 65 – 70 °C and discharge pressure of 1.5 kg/cm²
- 2) Water removal : Down to 500 ppm from initial of 5000 ppm
- 3) Noise level : Less than 85 dB at a distance of 1 mtr.

The Oil purification unit shall consist of the following items:

A) 1 no. Separator Bowl with following parts.

- Bowl body in stainless steel.
- Bowl hood in stainless steel.
- Disc stack and Gravity Disc in stainless steel.
- Distributor, top disc in brass / bronze

Frame of cast iron construction.

B) 1 Set of Collecting Covers in Aluminium Alloy.

- 1) One No. Integral positive displacement rotary gear type feed pump suitable for a suction lift of 4 MWG and equipped with built-in safety relief valve.
- 2) One No. Integral positive displacement rotary gear type discharge pump suitable to discharge cleaned oil at a pressure of 15 MWG and equipped with built-in safety relief valve.
- 3) One No. Totally enclosed fan cooled Drive Motor confirming to the following specifications

- | | |
|---|--------------------------|
| 1. KW/HP | 0.75 KW / 1 HP |
| 2. Voltage | 415 V ± 10% V |
| 3. Frequency | 50 ± 5% C/s (Hz) |
| 4. Combined variation in voltage & frequency. | ± 10% |
| 5. Class of Insulation | F |
| 6. Degree of protection | IP-55 |
| 7. Type of starting | D.O.L. |
| 8. Cooling method | T.E.F.C. |
| 9. Speed | 1500 r.p.m. (syn.) |
| 10. Standard | IS 325 |
| 11. Make | Crompton / Bharat Bijlee |

- 4) One No. indirect type oil pre heater of 24 kW capacity suitable to pre heat 1000 lits of oil through a temp. differential of 30 +/- 5 deg C. The heater shall be complete with the following.

- 2 nos. thermostat for automatic temp. control
- Water tank (insulated)
- Hot water pump, centrifugal with 0.75 kw motor (CGL)
- Plate heat exchanger to heat the oil to separation temp. with hot water
- Thermometer and pressure guage.

The heater shall be grouped in two stages.

- 5) One No. Liquid Seal Breakage Alarm Device comprising of :

- 1 No. Antiflood device tank of M.S. with drain connections.
- 1 No. float switch.
- 1 No. Solenoid valve at dirty oil inlet line .
- 1 No. Hooter to give audible alarm incase of liquid seal breakage
(mounted on a control panel.)

- 6) One No. Control panel to house starters, overload relay, fuses, contactors, etc., for motors and heaters and suitable to operate on 415 V, 50 Hz, 3 phase, A.C. supply.

The following interlocks provided in the panel :

- 1. Liquid seal breakage alarm/trip.
- 2. High oil temp. Alarm/heater trip.
- 3. Centrifuge motor overload trip.

The control panel will be fabricated from 2 mm CRCA sheet and will be painted in seven tank treatment process. It will be complete with control switches, indicating lamps, annunciator, overload relays for motor, heater selector switch etc. Control panel will be suitable for mounting on the base frame.

The following fittings in the pipeline :

- A) 1 No. 'Y' legged type pre-strainer with body in Cast Steel construction and with S.S. 316 mesh and with blow down valve.
- B) 1 Set of valves in main oil line with valve body in Carbon Steel and internals of AISI 304.
- E) 1 Set of Pressure gauges and thermometers.(GIC/Wika)

The piping will confirm to ASTM A 106 Gr. 'B' schedule 40 and of 25 N.B. Complete unit shall be mounted on a trolley type base frame having a tow bar and 4 castor wheels.

Note: Mechanical impurities at the outlet of centrifuge shall be 90 – 100 ppm to be achieved.

ANNEXURE – Y

TECHNICAL SPECIFICATION FOR VENTURY METER

1. Venturi Meter : For flow measurement of $10000\text{M}^3 / \text{Hr}$ and Differential pressure of 250 mm H₂O.
 - a. Pipe size: 200NB , Sch 40
 - b. Air Temperature: Ambient
 - c. Calibration range : $10000\text{M}^3 / \text{Hr}$ to $1000\text{M}^3 / \text{Hr}$
 - d. DP gauge is to be supplied along with the Venturi.
 - e. Body material: A105
 - f. Flange Material: A105
 - g. Material test certificate, dimensional report, RT report & Hydro test report shall be supplied along with the consignment.

ANNEXURE – Z

Technical Specification and Probable Vendor List of Pitot Tube with Digital Manometer

Technical Specification:

A) Pitot Tube

- a. L Type Pitot Tube
- b. Length: 1 meter
- c. Nozzle Dia: 8mm
- d. Material: SS316
- e. With Calibration Certificate and carrying case

B) Handheld, Multi-range, Digital Manometer

- a. Range: 0 – 1500mm of Water Selectable in steps of 100mm
- b. Resolution: 1mm of Water
- c. Accuracy: 0.2% of range
- d. Connection: 1/8 " BSP
- e. Indication: Digital, LCD
- f. With Carrying case and Calibration Certificate
- g. Power supply: Battery with provision for charging
- h. Unit of measurement: Selectable in mm of Water, mm of HG, mPascal and mBar.

ANNEXURE – AA - PVC TARPAULINS

<u>SL.NO.</u>	<u>DESCRIPTION</u>	<u>BHEL REQUIREMENT</u>
01	WEIGHT (GSM)	475+/-50
02	BREAKING STRENGTH (KGS) WRAP WEFT	100 minimum 90 minimum
03	TEARING STRENGTH (In KG) min WRAP WEFT	20 minimum 12 minimum

(NOTE: BIDDER TO SUBMIT THE TECHNICAL SPECIFICATION OF THE PRODUCT OFFERED ALONG WITH SAMPLE PIECE.)

GENERAL SPECIFICATIONS:

1. GROSS JOINTS SHALL BE MAXIMUM OF TWO NUMBERS IN ANY OF TYPE OF THE PANELS EXCEPT SIDE PANELS WITH EYELETS
2. NUMBER OF EYELETS ON 6 MTRS SIDE SHALL BE 5/6 NUMBERS
3. INTERNAL PANEL JOINT OVERLAP SHALL BE 25 MM
4. 12MM DIA ROPE SHALL BE INSERTED AROUND THE PERIPHERY WELDED IN 40 MM HEM
5. BRASS EYELETS AT 4 FEET EQUIDISTANCE (SIZE 30 No.) SHALL BE FIXED AROUND PERIPHERY
6. REINFORCEMENT TO BE PROVIDED AT FOUR CORNERS.

SUPPLIER FEEDBACK FORM

BHARAT HEAVY ELECTRICALS LIMITED
Vendor Empanelment for Products

(PLEASE MENTION THE SOURCE FROM WHERE YOU GOT THE EMPANELMENT INFORMATION
FOR OUR SURVEY PURPOSE)

WE CAME TO KNOW THE INFORMATION OF THIS VENDOR EMPANELMENT FROM NEWS
PAPER.....

(PLEASE MENTION THE NAME & EDITION)/ BHEL WEBSITE / OTHER COMPANIES / OTHER
SOURCES.

COMPANY NAME & ADDRESS: