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|  | TECHNICAL SPECIFICATION FOR ELECTRICAL WORKSHOP EQUIPMENTS | SPECIFICATION NO. EM-NHP-PBTII-15 | |
| | | Rev. No | 00 |
| | PARBATI-II – HEP | Rev. Date | |

SECTION 1 – SCOPE OF ENQUIRY

1. This Specification covers the design, manufacture, inspection and testing at vendors work, proper packing and delivery as per NIT for ELECTRICAL WORKSHOP EQUIPMENTS of :
4 X 200 MW PARBATI – II HEP
2. It is not intent to specify herein all the details of design and manufacture. However the equipment shall conform in all respect to high standards of design engineering and workmanship and shall be capable of performing in continuous commercial operation up to vendors guarantee.
3. The general terms and conditions, instructions to tender and other attachment referred to elsewhere be hereby made part of the tender specification.
4. The tenderer shall be responsible for and governed by all requirements stipulated herein after.
5. **Deviation**, if any should be brought out very clearly on deviation sheet (ANNEXURE-III) of the specification. Otherwise it would be presumed that the tender offer is in line with what has been stated/asked for in this specification.
6. The offer should be complete with technical data, catalogue, brochures and drawings, as applicable.
7. The bid shall be in English language and MKS system of unit.

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|  Sumit Dhiman Engineer |  Mandvi Gupta Dy. Manager |
| PREPARED BY | CHECKED & APPROVED BY |

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SECTION 2 – General Conditions

1. SCOPE OF SUPPLY

The scope of supply indicating technical specification & Bill of quantity shall be as per Annexure –I (Details of Equipments) along with all essential accessories required for the successful operation of the equipments.

2. CODES AND STANDARDS

All relevant National and International standards shall be specified and followed.

3. DESIGN CRITERIA

- 3.a. Electrical Workshop Equipment shall be used for testing various electrical equipment/ devices during Commissioning, Operation and Maintenance of plant.
- 3.b. The equipment will be kept in a clean but hot, humid and tropical atmosphere when not in use. Equipment will be placed in dust laden, hot, humid atmosphere during its use.
- 3.c. For continuous operation at specified rating, temperature rise of various equipment/ components shall be limited to the permissible value stipulated in the relevant standards and this specification.
- 3.d. The equipment and component thereof shall be capable of withstanding the mechanical forces and thermal stresses of the short circuit current without any damage and deterioration of material.

4. SPECIFIC REQUIREMENTS & RATINGS

- 4.a. The bidder may note that the equipment ranges, ratings, quantities as detailed herein, are the minimum requirement only. The equipment shall be furnished in strict accordance with the same. All accessories for the equipment not covered here, but are necessary for satisfactory and trouble free operation of the equipment, shall be supplied by the Bidder. Bidder may also quote for optional accessories.

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4.b. The instrument shall be designed suitably for satisfactory operation and storage in wide range of temperature variations prevailing at projects sites:

Parbati II: (-) 4°C to 46°C.

4.c. Analog instruments shall be provided with knife-edge pointer and anti-parallax mirror.

4.d. Instrument/meters suitable for DC supply should be provided with re-chargeable batteries, charger and low battery charge indication.

4.e. The portable instruments shall be suitable for hand held operation, rugged in construction and suitable for field use.

4.f. Power supply for AC operation Instrument shall be 240 V AC, 50 Hz single phase.

4.g. All electrical instruments shall be dust and moisture proof.

4.h. Calibration tests shall be done on all instruments, wherever applicable and calibration certificates are to be furnished with instruments.

4.i. Equipments shall be of shock proof.

4.j. Instruments shall meet National or International relevant safety standards.

4.k. Manufacturers name plate:

The following data shall be shown in accordance with the relevant standard

- Manufacturers name and address
- Works serial number and date of manufacture
- Main technical data

4.l. Warning Plates:

Warning plates / caution for the safety of instrument & human beings with Dos and Don'ts to be inscribed on the instruments / Recorders / all electrical equipment in English.

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5. TESTING & INSPECTION

- 5.a The manufacturer shall carry out all acceptance and routine tests as per relevant standards and specification in line with BHEL specifications . Charges for all these routine and acceptance tests for all the equipments shall deem to be included in the bid price.
- 5.b Equipment shall be completely assembled, wired, adjusted and tested in factory as per the latest edition of relevant standards.
- 5.d The Bidder shall submit the Test Certificates/Reports for all the acceptance and routine tests as per relevant standards, specifications and in line BHEL approval. Based on approved Test Certificates/ Reports, the BHEL will give the dispatch Clearance. Only after Clearance vendor can dispatch the material.
- 5.e Bidder shall also submit the Test Certificates for all the acceptance and routine tests as per relevant standards, specifications along with the equipment as per TABLE-2, Annexure - II.

6. Documentation

6.a. To be submitted with bid:

The Bidder shall submit all documents as per TABLE-1, Annexure - II along with the bid.

The Bidder shall ensure that the all-necessary information required to fully describe the equipment are submitted with the bid.

6.b. To be submitted after award of order:

The Bidder shall submit all documents as per TABLE-2, Annexure - II.

After award of contract for BHEL and/ or end customer approval (NHPC) and also along with equipment.

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7. DELIVERY

The delivery of Equipment shall be completed as per NIT (Notice Inviting Tender)

8. While quoting Bidder shall have to furnish unit rate for each item. Purchaser reserves the rights to add/delete quantity of any item during detailed engineering as finally required for the project. Unit rate quoted shall be applicable for price adjustment in such cases.
9. All the equipment shall be procured from reputed manufacturers and make of equipment shall be subjected to the approval of BHEL/ BHEL's Customer.

10. Performance Guarantee

The bidder shall guarantee that the equipment offered shall meet the requirement as stipulated in this specification and as confirmed by them in annexure – I, (Duly filled in). In case the performance of equipment is not as per performance guarantee, the bidder will have to replace the equipment at site free of cost.

11. Deviation

The Bidder shall indicate the deviation, if any, in Schedule of Technical Deviation as per Annexure – III, along with the justification for the deviation. Deviations mentioned anywhere else shall not be entertained.

12. Package & Consignment Data

The Bidder shall pack all the equipment, their accessories and spares in road -worthy package. Bidder to indicate the number of packages of consignment together with the size (L x W x H) and weight for transporting the equipment along with their bid.

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Each package shall be legibly marked with the following information:

Applicable for Parbati – II Project:

ELECTRICAL WORKSHOP EQUIPEMENTS for 4 X 200 MW **PARBATI –II
HEP**

BHEL Purchase Order No:

Job No: 3864-11

Supplier's Name:

Manufacturer's Name:

Name of the Equipment:

Item Code of the equipment: (As per ANNEXURE – I)

Quantity:

Weight:

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Annexure – I

Details of Equipments

Bidder must quote the material code number, material description & quantity offered in their quotation /bid, as specified below project wise. Bidder's alternate description can also be given in separate column.

Completeness of Equipment

Each of the equipment listed shall be complete with applicable accessories like power supply main leads, screened guard leads, screened line test leads, earth leads, connectors and clips, leather carrying case and any other accessories required for completing the equipment.

| Sl.No | Item specification | Qty | Item Code | Details of Equipment offered by the Bidder | |
|-------|-----------------------------|------|--------------|--|--------------|
| | | | | Make & Model No | Catalogue No |
| 1 | As per attached Annexure-IV | 1No. | IM4386417290 | | |

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Annexure -II

Table 1

LIST OF DOCUMENTS TO BE SUBMITTED ALONG WITH BID

| SI.No | Documents | No of copies |
|-------|--|--------------|
| 1 | Annexure – I Details of Equipments (Duly Filled) | 2 copies |
| 2 | Product Catalogue for all equipments/ instruments referred in Annexure – I | 2 copies |
| 3 | Schedule of Deviation (Annexure – III) | 2 copies |

NOTE: All above documents to be submitted strictly, failing which the offer may likely be rejected.

Table 2

LIST OF DOCUMENTS TO BE SUBMITTED AFTER AWARD OF ORDER FOR BHEL / END CUSTOMER APPROVAL and ALONG WITH EQUIPMENT

| SI.No | Documents | No of copies |
|-------|--|------------------------------------|
| 1 | Product catalog with complete specifications, model nos. physical dimensions etc. | 3 copies (2 for NHPC + 1 for BHEL) |
| 2 | Product Layout Drawings | 3 copies (2 for NHPC + 1 for BHEL) |
| 3 | Test Certificates of all acceptance and routine tests as applicable. | 3 copies (2 for NHPC + 1 for BHEL) |
| 4 | Calibration certificates as applicable. | 3 copies (2 for NHPC + 1 for BHEL) |
| 5 | Guarantee certificate valid for 12 months from the date of delivery. | 2 copies (1 for NHPC + 1 for BHEL) |
| 6 | Instruction manual of individual equipment shall clearly indicate in English the installation and connection method. Operating, Maintenance and Calibration methods shall be provided in the manual. | 7 copies (6 for NHPC + 1 for BHEL) |

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Annexure – III

Deviation Statement (Technical)

| Sr No. | Item | Deviation | Justification for Deviation |
|--------|------|-----------|-----------------------------|
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Use extra sheet if required.

Note: Bidder has to indicate clearly the deviations if any w.r.t. specification. Bidder has to indicate all the deviations on this annexure – III only, deviations mentioned elsewhere in Bidder’s offer will not be considered.



- (63) ▪ One (1) Universal laboratory workbench.

The universal laboratory steel workbench with a wooden table top and four drawers (lockable) shall be equipped with a top mounted instrument and current supplying board. The metal enclosure of the instrument board shall be composed of sheet- steel with a minimum thickness of 2.5 mm. The board shall be dust and vermin proof. It shall be completely equipped, wired and painted and shall have a rated insulation level in accordance with the applicable IEC/VDE standards.

- 415/240 V bushings for banana plugs with transparent protective covers
- Instruments with anti-glare glass
- Instrument size: 48 x 48 mm
- Measuring range: 1.24 x rated value to be indicated
- Accuracy class: 1.5

The power supply units shall be provided with:

- Four (4) double sockets, 230 V, 50 Hz, each equipped with miniature circuit breaker and signal lamp
- One (1) power socket, 3 x 415/240 V, 50 Hz, with miniature circuit breaker and signal lamp
- One (1) bushing connection, 3 x 415/240 V, 50 Hz (L1/L2/L3/N) with three (3) signal lamps, three (3) voltmeters and three (3) ammeters and miniature circuit breaker One (1) bushing connection, 24 V, 50 Hz, 5 A, with voltmeter, ammeter, signal lamp and miniature circuit breaker.
- One (1) bushing connection +24 V/OV/-24 V D.C., 2 A, with two (2) voltmeters, two (2) ammeters, two (2) signal lamps and miniature circuit breaker.
- One (1) bushing connection, 0 ... 30 V D.C., 0 ... 1.5 A, voltage and current controlled, with voltmeter, ammeter, signal lamp and miniature circuit breaker.
- One (1) bushing connection, 0...240 V, 50 Hz, steep less adjustable by means of a handle with scale, with voltmeter, ammeter signal lamp and miniature circuit breaker.
- One (1) main power switch, three-pole, hand operated.
- (64) ~~Four (4) workbenches, 2.0 x 0.8 m, with a rigid steel structure, even surface, hard-wood plate of min. 50 mm thickness,~~

(66)

(67)
(68)
(69)
(70)
(71)

