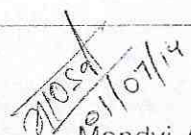


 BHEL-EMRP MUMBAI	TECHNICAL SPECIFICATION PART-I FOR ELECTRICAL WORKSHOP EQUIPMENTS TESTING DEVICES		SPECIFICATION NO. EM-MHDA-MAN-00	
	4 x 180 MW MANGDECHHU HEP		Rev. No	00
			Date	01.07.2014

GENERAL TECHNICAL SPECIFICATIONS

 Sumit dhiman Engineer BOP	 Mandvi Gupta Manager BOP
PREPARED BY	APPROVED BY

 BHEL-EMRP MUMBAI	TECHNICAL SPECIFICATION PART-I FOR ELECTRICAL WORKSHOP EQUIPMENTS TESTING DEVICES		SPECIFICATION NO. EM-MHDA-MAN-00	
			Rev. No	00
	4 x 180 MW MANGDECHHU HEP		Date	01.07.2014

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

Mangdechhu: (-) 7°C to 36°C.

 BHEL-EMRP MUMBAI	TECHNICAL SPECIFICATION PART-I FOR ELECTRICAL WORKSHOP EQUIPMENTS TESTING DEVICES		SPECIFICATION NO. EM-MHDA-MAN-00
			Rev. No 00
	4 x 180 MW MANGDECHHU HEP		Date 01.07.2014

- 5.c 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 with QAP for BHEL /customer (MHDA) approval. Based on approved Test Certificates/ Reports, the customer (MHDA) will issue the Material Dispatch Clearance Certificates (MDCCs). Only after receipt of MDCC 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 - I.

6. Documentation

6.a. To be submitted with bid:

The Bidder shall submit all documents as per TABLE-1, Annexure - I 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 - I.

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

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.

 BHEL-EMRP MUMBAI	TECHNICAL SPECIFICATION PART-I FOR ELECTRICAL WORKSHOP EQUIPMENTS TESTING DEVICES		SPECIFICATION NO. EM-MHDA-MAN-00	
			Rev. No	00
	4 x 180 MW MANGDECHHU HEP		Date	01.07.2014

Annexure-I

Table 1

LIST OF DOCUMENTS TO BE SUBMITTED ALONG WITH BID

Sl.No	Documents	No of copies
1	Details of Equipments as per Specific technical Specifications (Duly Filled)	2 copies
2	Product Catalogue for all equipments/ instruments referred in Specific technical Specifications	2 copies
3	Schedule of Deviation as per Specific technical Specifications	2 copies

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

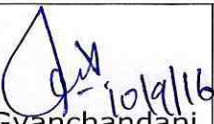
Table 2

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

Sl.No	Documents	No of copies
1	Product catalog with complete specifications, model nos. physical dimensions etc.	3 copies (2 for MHDA + 1 for BHEL)
2	Quality Assurance Plan along with test certificates and calibration certificates for MDCCs	4 copies (3 for MHDA + 1 for BHEL)
2	Test Certificates of all acceptance and routine tests as applicable.	3 copies (2 for MHDA + 1 for BHEL)
3	Calibration certificates as applicable.	3 copies (2 for MHDA + 1 for BHEL)
4	Guarantee certificate as per NIT.	2 copies (1 for MHDA + 1 for BHEL)
5	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 MHDA + 1 for BHEL)

 BHEL-EMRP MUMBAI	TECHNICAL SPECIFICATION PART-II FOR ELECTRICAL WORKSHOP EQUIPMENTS TESTING DEVICES		SPECIFICATION NO. EM-MHDA-MAN-23	
			Rev. No	00
	4 x 180 MW MANGDECHHU HEP		Date	10.09.2016

SPECIFIC TECHNICAL SPECIFICATIONS

 K. K. Gyanchandani Sr. Engineer (Engg.)	 Mandvi Gupta Manager (Engg.)
PREPARED BY	APPROVED BY

 BHEL-EMRP MUMBAI	TECHNICAL SPECIFICATION PART-II FOR ELECTRICAL WORKSHOP EQUIPMENTS TESTING DEVICES		SPECIFICATION NO. EM-MHDA-MAN-23	
			Rev. No	00
	4 x 180 MW MANGDECHHU HEP		Date	10.09.2016

(1)Details of Equipments

Bidder must quote the make, model No, material description & quantity offered in their quotation /bid, as specified below. 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. Bidder has to mention technical details & quantity of each item under this category along with offer.

Sl.No	Item specification	Qty	Details of Equipment offered by the Bidder
1	PHASE SEQUENCE INDICATOR	5 No.	
(i)	Make & Model No		
(ii)	Voltage: 100 to 500V.		
(iii)	Terminals marked with L1, L2 and L3.		
(vii)	Frequency range: 15 to 400 Hz		
(viii)	List of accessories.		

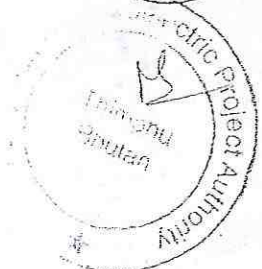
 BHEL-EMRP MUMBAI	TECHNICAL SPECIFICATION PART-II FOR ELECTRICAL WORKSHOP EQUIPMENTS TESTING DEVICES		SPECIFICATION NO. EM-MHDA-MAN-23	
			Rev. No	00
	4 x 180 MW MANGDECHHU HEP		Date	10.09.2016

(2) Technical Deviation Statement (if any)

Sr No.	Item	Deviation	Justification for Deviation

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

MODEL QUALITY ASSURANCE PLAN (QAP) FOR ELECTRICAL WORKSHOP



QUALITY ASSURANCE PLAN (MODEL)

PROJECT : MANGDECHHU HE PROJECT, BHUTAN
NAME OF
EQUIPMENT : ELECTRICAL WORKSHOP EQUIPMENT

CLIENT: MANGDECHHU HYDROELECTRIC PROJECT AUTHORITY.
VENDOR NAME & ADDRESS:
NIT/P.O. REFERENCE :

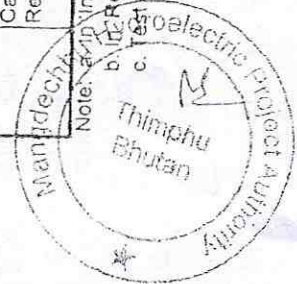
Page: 19-3

SL. NO.	ITEM /COMPONENTS & CHARACTERISTICS	NATURE OF CHECKS	QUANTUM OF CHECKS	REFERENCE DOCUMENTS / ACCEPTANCE NORMS	RECORD FORMAT	INSP. AGENCY		REMARKS
						Perform	Witness	
	Device, Digital Multimeter (A.C. & D.C.), Analog Multimeter (A.C. & D.C.), High Frequency Generator, Decade Resistor, Connection Leads, Constant Current Supply Unit, Volt Meter, Ammeter, Single Phase Toroidal Transformer, Universal Digital Voltmeter, Universal Instrument, Phase Sequence Indicator, P.F. Measuring Instrument, Digital Frequency Meter, Temp. Measuring Instrument, Sound Level Meter, Digital Mechanical Revolution Counter, Tan Delta Measuring Instrument, Transformer Turn Ratio Meter, Stop-Watch, Hook-on Volt-Ammeter, Vibration Meter, Ohm & Capacitance Meters, Earth Resistance Measuring							

Note: a) Inspection Agency column figure 1,2, or 3 to be filled. 1- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
b) 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point.
c) Test certificates shall be submitted at the time of final inspection.



293



Signature
MHPA (Client)

Signature
NHPC (Consultant)



Signature & Seal
Vendor