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|  | BHARAT HEAVY ELECTRICAL LIMITED UNIT'S ADDRESS: Piplani, Bhopal --462016 (M.P.) | | | Enquiry No. : | |
| | CONTACT PERSON'S NAME/DESIGN./PHONE NO./E-MAIL (FROM PURCHASE DEPTT.) | | | Due Date : | |
| | | | | Supplier Qtn. No.: | |
| | | | | Date : | |
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| | NOTE:- | | | | |
| | 1. Vendor must submit complete information against clause no. 13 (Qualifying Condition). The offer meeting this clause would only be processed. | | | | |
| | 2. The "Offered" Column and where applicable, the "Deviations" & "Remarks" Column of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous, or unsustainable information against any of the clauses of the specifications/requirements shall be treated as non-compliance. | | | | |
| | 3. The offer and all documents enclosed with offer should be in English language only. | | | | |
| | NAME & ADDRESS OF THE SUPPLIER : | | | | |
| | TELEPHONE NOS.: | | | | |
| | FAX NOS.: | | | | |
| | E-MAIL ADDRESS : | | | | |
| | SCOPE: SUPPLY, ERECTION & COMMISSIONING OF INSULATION RESISTANCE MEASURING INSTRUMENT FOR LIQUID DIELECTRIC COMPLYING WITH SPECIFICATIONS AS BELOW | | | | |
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| SNO | DESCRIPTION FOR BHEL REQUIREMENT | | SPECIFIED / TO BE CONFIRMED BY | OFFERED | DEVIATIONS | REMARKS |
|------------|--|--|--------------------------------|---------|------------|---------|
| 1.0 | PURPOSE & WORK PIECE MATERIAL | | | | | |
| 1.1 | Purpose: | | | | | |
| | For testing of resistivity measurement for liquid dielectric/oil. | | Indenter | | | |
| 1.2 | Jobs to be tested : Liquid dielectric/transformer oil | | Indenter | | | |
| | Quantity : 01 Nos | | | | | |
| 2.0 | SPECIFICATION: | | | | | |
| 2.1 | Resistance measurement range: 10 k Ω to 5 T Ω | | Vendor to confirm | | | |
| 2.2 | Accuracy : $\pm 5\%$ upto 1T Ω | | Vendor to confirm | | | |
| 2.3 | Test Voltage : 10 V to 5000V | | Vendor to confirm | | | |
| 2.4 | Limits of error: $\pm 5\%$ | | Vendor to confirm | | | |
| 2.5 | Display : 3.5 digit | | Vendor to confirm | | | |
| 2.6 | Timing | | | | | |
| 2.6.1 | Charging time : 0 to 9999 msec | | Vendor to confirm | | | |
| 2.6.2 | Discharge time : 0.1 Cx (in μ F) | | Vendor to confirm | | | |
| 2.7 | Interface: IEEE 488 / RS 232 | | Vendor to confirm | | | |
| 2.8 | Test Cell | | Vendor to confirm | | | |
| 2.8.1 | Design : Cylindrical capacitor with a shielded measurement electrode | | Vendor to confirm | | | |
| 2.8.2 | Electrode spacing: 2mm | | Vendor to confirm | | | |
| 2.8.3 | Electrode material : Stainless steel | | Vendor to confirm | | | |
| 2.8.4 | Electrode Temperature : Max. 150° C | | Vendor to confirm | | | |
| 2.8.5 | Max. test voltage : 2 kV | | Vendor to confirm | | | |
| 2.9 | Cables : | | | | | |
| 2.9.1 | Two co-axial measuring cables with H.T. BNC connectors of 1.5 m length | | Vendor to confirm | | | |

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| 2.9.2 | Cable of 1.5 m coax cable with BNC and Lemo connectors to connect Mega ohmmeter to test cell | | Vendor to confirm | | | |
| 2.9.3 | Power cables | | | | | |
| 2.10 | SAFETY ARRANGEMENTS: | | | | | |
| | Following safety features in addition to other standard safety features should be provided on the system: | | Vendor to confirm | | | |
| | 1.System should have adequate and reliable safety interlocks / devices to avoid damage to the system, work piece and the operator due to the malfunctioning or mistakes. | | Vendor to confirm | | | |
| | 2. All electronics parts are housed in shielded enclosures. | | Vendor to confirm | | | |
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| 2.11 | ENVIRONMENTAL PERFORMANCE OF THE SYSTEM: | | | | | |
| | The Instrument shall conform to following factors related to environment : | | | | | |
| | (a) If any safety / environmental protection enclosure is required it should be built in the system by the vendor. | | Vendor to confirm | | | |
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| 3.0 | ACCESSORIES: | | | | | |
| 3.1 | Vendor to furnish list and details of accessories if any | | Vendor to specify | | | |
| | | | | | | |
| 4.0 | SPARES: | | | | | |
| 4.1 | All necessary spares for two years trouble-free operation. | | Vendor to Confirm | | | |
| | | | | | | |
| 5.0 | DOCUMENTATION : | | Vendor to Confirm | | | |
| | 4 copies of each of the following shall be supplied along with the system | | | | | |
| 5.1 | Instruction manual | | Vendor to Confirm | | | |
| 5.2 | Maintenance manual along with circuit diagrams and schematics | | Vendor to Confirm | | | |
| 5.3 | Test & Guarantee Certificate. | | Vendor to Confirm | | | |
| 5.4 | Calibration certificate | | Vendor to Confirm | | | |
| 5.5 | List of customer where equipment has been supplied earlier | | Vendor to Confirm | | | |
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| 6.0 | SYSTEM INSPECTION: | | | | | |
| 6.1 | Inspection at suppliers works before dispatch | | Vendor to Confirm | | | |
| 6.2 | All routine and type tests to be performed at supplier's works on the system before dispatch in presence of BHEL representatives | | Vendor to specify & confirm | | | |
| 6.3 | Demonstration of all features of the Insulation resistance meter for liquid dielectric system and all Accessories. | | Vendor to Confirm | | | |
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| 7.0 | TRAINING: | | | | | |
| 7.1 | BHEL testing engineer and maintenance person should be trained at supplier's Works for mutually agreed period in the area of (a) Use of all system Features, programming for Measuring Systems & supplied accessories etc. (b) Electrical, Electronic & maintenance for system & other supplied equipments | | Vendor | | | |
| 7.2 | Air-fare, boarding & lodging for the trainees shall be borne by BHEL. | | Vendor | | | |
| 7.3 | Competent, English speaking experts shall be arranged by the vendor during training for satisfactory & effective training of BHEL personnel. | | Vendor | | | |
| 7.4 | Vendor to quote for training on man / week basis | | Vendor | | | |
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| 8.0 | INSTALLATION & COMMISSIONING | | | | | |
| 8.1 | Supplier to take full responsibility for carrying out the start up and commissioning | | Vendor | | | |
| 8.2 | Successful proving of BHEL components by the supplier shall be considered as part of commissioning. Following tests deemed necessary for system acceptance shall form part of the commissioning activity. D) Operational Tests ii) Calibration Tests | | Vendor to specify and confirm | | | |
| 8.3 | Demonstration of all features of the programmable insulation resistance meter for liquid dielectric & all accessories to the satisfaction of BHEL for their efficient and effective use. | | Vendor to confirm | | | |
| 8.4 | Demonstration by actual use of all supplied components and accessories to their full capacity. | | Vendor to confirm | | | |

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| 8.5 | Commissioning spares , required for commissioning of the system within stipulated time, shall be brought by the supplier on returnable basis. | | Vendor to confirm | | | |
| 8.6 | Schedule of Commissioning shall be submitted with the offer. | | Vendor to confirm | | | |
| 8.7 | Charges, duration, terms & conditions for E&C should be furnished in detail separately by vendor along with offer. | | Vendor to confirm | | | |
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| 9.0 | AMBIENT CONDITIONS & THERMAL STABILITY : | | | | | |
| 9.1 | Total System and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. Power Supply: Voltage: 230 V - 10%, +10% Frequency: 50 Hz \pm 1.5 Hz Operating Temperature : 10 to 40° C (Vendor to confirm that system is suitable for above and details of provisions on the system for the same are to be furnished by Vendor. The ambient conditions mentioned above for control system will be made available with suitable air-conditioning at works.) | | Vendor | | | |
| 9.2 | Thermal Stability of the complete system keeping in view specified Ambient Conditions and accuracy requirements of BHEL components and trouble free operation of the system should be ensured by vendor. (Vendor to confirm that system is suitable for above and details of provisions on the system for the same should be furnished by Vendor) | | Vendor | | | |
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| 10.0 | PACKING: | | | | | |
| 10.1 | Air worthy/Sea worthy & rigid packing for all items of complete system, all Accessories and other supplied items to avoid any damage/loss in transit. When system is dispatched in containers, all small loose items shall be suitably packed in boxes | | Vendor | | | |
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| 11.0 | GUARANTEE : | | | | | |
| 11.1 | 12 months from the date of commissioning of the system. | | Vendor | | | |
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| 12.0 | GENERAL : The vendor should submit the following information: | | | | | |
| 12.1 | Equipment Model | | Vendor | | | |
| 12.2 | Total connected load (KVA): | | Vendor | | | |
| 12.3 | Total weight of the system | | Vendor | | | |
| 12.4 | Vendor to submit, along with offer, the reference list of customers where similar systems have been supplied mentioning the customer, Machine Model, major specifications of the supplied system, Year of Supply etc | | Required | | | |
| 12.5 | Detailed catalogues , sketch/ photographs of the m/c and accessories/ attachments should be submitted with the offer. | | Required | | | |
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| 13.0 | QUALIFYING CONDITIONS : | | | | | |
| 13.1 | Only those vendors, who have supplied and commissioned at least one insulation resistance meter for liquid dielectric system for similar applications in the past ten years and such system is presently working satisfactorily for more than one year after commissioning (more than 6 months after commissioning if supplied to BHEL) , should quote. The following information is to be submitted by the vendor about the companies where similar instrument have been supplied. This is required from all the vendors for qualification of their offer. | | Vendor to confirm | | | |
| | 1. Name of the customer / company where similar system is installed. | | | | | |
| | 2. Complete postal address of the customer. | | | | | |
| | 3. Year of commissioning. | | | | | |
| | 4. Application for which the system is supplied with details of accuracies achieved on the job. | | | | | |
| | 5. Name and designation of the contact person of the customer. | | | | | |
| | 6. Phone, FAX no. and email address of the contact person of the customer. | | | | | |
| | 7. Performance certificate from the customers regarding satisfactory performance of system supplied to them | | | | | |
| | 8. BHEL reserves thr right to verify information submitted by vendor. In case the information is found to be false / incorrect , the offer shall be rejected. | | | | | |