

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

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Section : Formats

Issue No : 2  
Issue Dt. : 30.06.2003  
Issued by : P A  
Documents : PPM

Topic : Technical Specifications format

FORMAT NO.:CPRI/PUR/ETBID/GTP

Section IV T -Technical Specification

CENTRAL POWER RESEARCH INSTITUTE, BENGALURU/BHOPAL Web: www.cpri.res.in www.tenderwizard.com/CPRI

Tender Enquiry No : CPRI/BLR22DMD02C1106

Description of the Equipment/Goods/Services : FULLY AUTOMATIC DIELECTRIC DISSIPATION FACTOR (TAN DELTA), DIELECTRIC CONSTANT AND RESISTIVITY MEASURING INSTRUMENT FOR INSULATING OILS

Note : 1) The technical bid submitted in other than this format is liable to be rejected.  
2) All blue fields are mandatorily to be filled in.

Name and address of the bidder

Quotation Number and Date

Sl.No.	Technical Specifications/Parameters	Qty	To be completed by the Bidder		
			Details of guaranteed technical parameters offered by the bidder	Guaranteed Technical Particulars (GTP)	Deviations from GTP
1	SUPPLY OF FULLY AUTOMATIC DIELECTRIC DISSIPATION FACTOR (TAN DELTA), DIELECTRIC CONSTANT AND RESISTIVITY MEASURING INSTRUMENT FOR INSULATING OILS	1 No.			
2	Scope (Supply / Supply & Installation / Supply, Installation & Training) Supply, Installation, Commissioning & Training				
3	<b>Instrument</b> Instrument fully automatic capable of measuring Dielectric Dissipation Factor (Tan δ), Dielectric Constant & Resistivity of insulating liquids with pre programmed and custom programable sequence and heating mechanism as per IS 6262, IS 6103, IEC 60247, ASTM D 1169 and ASTM D 924 and any other relevant standard test methods.				
4	<b>Range of Measurement and Accuracy</b> a) Tan δ (DDF) : $1 \times 10^{-6}$ to 4.0 and Accuracy $\pm 1\%$ of reading. b) Resistivity : $1.0 \times 10^{-9}$ to $1.0 \times 10^{16}$ ohm-cm or higher and Accuracy $\pm 1\%$ of reading. c) Permittivity (Dielectric Constant) : 1- 13 and Accuracy $\pm 1\%$ of reading. d) Test Temperature: Selectable between Ambient to 110°C or more. and Accuracy $\pm 0.25\%$ of reading. e) Voltage: AC Voltage - 200 V to 2000 V AC and Accuracy $\pm 1\%$ of reading, Frequency: Between 40 Hz and 62Hz (45 Hz and 62 Hz as per ASTM D924), DC Voltage: 125 - 500 V DC. and Accuracy $\pm 1\%$ of reading.				
5	<b>Resolution (minimum)</b> a) Voltage: Both AC & DC Voltage - 1 Volt of the output voltage. b) Temperature - 0.1°C or better . c) Tan delta - $1 \times 10^{-6}$ d) Resistivity - 0.01, (G Ω-m)/ $\times E^{12}$ Ohm-cm ) or better. e) Relative Permittivity - 0.001 f) Reproducibility of measurements shall meet the requirement of relevant test methods				

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6	<b>Test cell</b>				
	a) Three terminal stain steel test cell as per IEC 60247 clause 5.1. (The dissipation factor of empty cell should be lower than $1 \times 10^{-6}$ )				
	b) The volume of test cell shall be approximately 45 -60 ml.				
	c) Additional Three terminal cell to be supplied along with the equipment	1 No			
	d) The cell spacers / gaskets shall be made of materials that is electrically insulating and chemically inert like PTFE / Quartz, resistant to all types of insulating liquids (such as mineral oil, synthetic ester, natural esters, silicone oils etc.) over the temperature range and the cleaning agents which may be used.				
7	<b>Cell Heating mechanism</b>				
	1. Cell heating facility should be induction heating to heat the cell and the oil from Ambient to 110°C or More, (user selectable).				
	2. The test cell heating to raise the temperature of liquid to test temperature in 10 to 60 minutes.				
8	<b>Accurary and Resolution of the cell heater</b>				
	1. Cell heater should have temperature sensing probe with (a). Resolution of 0.1° C and (b). Accuracy of $\pm 0.25^{\circ}\text{C}$ or better.				
	2. Proper heating control mechanism and device shall be provided to maintain the set temperature for the measurement period (Approximately 10 mins.).				
9	<b>Cell heater design, Oil drain facility and safety features</b>				
	1. The cell should have oil self/auto draining facility.				
	2. Cell Heater to be heat the oil uniformly				
	3. The cell heater shall have adequate safety features, interlock etc.				
10	<b>Calibration certificate</b>				
	The instrument shall have calibration certificate traceable to National/ International standards from an International accredited laboratory or with uncertainty calculations. The calibration certificate to be issued in the name of CPRI and the date of calibration certificates to be dated only the Purchase order. Calibration certificate for AC, DC Voltage, Frequency & timer should be provided.				
11	<b>Calibrator</b>				
	Suitable calibrator with the test certificate traceable to National / International standards from an ISO/IEC 17025 accredited laboratory shall be supplied to carryout internal calibration of Capacitance, Tan delta and resistivity measurements at periodic intervals for the equipment.	1 No.			

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12	<b>Data Input for automated log recording</b>				
	a)Should have facility for data input Automatic recording/ storage of input data and measured data, results and reports generated . b)Provision shall also be there for automatic transfer of data to a computer system through interface. c) Shall have provision for exporting test data to paper print and LIMS.				
13	<b>Operation and control</b>				
	The system shall have an independent inbuilt microprocessor control. It shall also have facility to interface with a computer for total measurement operation and control parameters.				
14	<b>Instrument Display</b>				
	The instrument shall have in built display for display of input and output parameters like Sample code, Test standard, measuring conditions, input parameters and the test results.				
	<b>GENERAL REQUIREMENTS</b>				
15	<b>Power supply requirement:</b> Power supply requirement: 230 ± 10 % V AC, Frequency of 50 ± 5 % Hz.				
16	<b>Environmental working conditions:</b> The equipment shall effectively function at ambient temperatures ( 15°C to 45°C ) & RH between 10 - 80 % non-condensing.				
17	<b>Supply Installation &amp; Commissioning:</b> at DMD-CPRI , Bengaluru shall be the responsibility of the supplier.				
18	<b>Pre installation requirements:</b> Pre-installation requirements have to be mentioned with the offer.				
19	<b>Warranty certificate:</b> Warranty for 1 year from the date of successful installation & commissioning of equipment.				
20	<b>Calibration Certificate:</b> Suitable calibrator with the test certificate traceable to National / International standards from an ISO/IEC 17025 accredited laboratory shall be supplied to carryout internal calibration of Capacitance, Tan delta and resistivity measurements at periodic intervals for the equipment.				
21	<b>Documentary Evidence:</b> Compliance of the specification shall be supported by documentary evidence such as product catalogues / application notes.				

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			Details of guaranteed technical parameters offered by the bidder	Guaranteed Technical Particulars (GTP)	Deviations from GTP
22	<b>Instruction Manual:</b> 2 Nos. of Instruction manual in english, indicating trouble shooting, Operation amd maintenance and other relevant details should be provided with equipment. The				
23	<b>Training:</b> Training on operation & maintenance of equipment at CPRI, Bengaluru.				
24	<b>Customers List:</b> A list of customers (with details like name of contact person, address, phone No., E-mail ID etc.) to whom similar systems were supplied to be furnished.				
25	<b>Supply of spares:</b> The Vendor shall ensure supply of spares for at least 7 years.				
26	<b>General Laboratory Practice (GLP):</b> Date, time and serial no of the instrument Print out of records as per GLP i.e. sample name, operators name, date, time, result tables, and statistical calculations, etc. Instrument shall have user right restriction and administrative log in features				
27	<b>Safety :</b> Shock proof & safety measurements as per relevant national / international standards				
28	<b>Delivery Schedule :</b> 4 months from the date of P.O.				
29	<b>Company Status:</b> Original Equipment Manufacturing Company shall have ISO 9001 certification.				
30	Provide customer list ( 7 Nos minimum) indicating details of performance from the users of the instrument.				

- PN: 1) Mere statement of "Complied" do not suffice the requirement. The details of technical parameters in proof of CPRI requirements shall be furnished along with technical write-up, catalogues, brochures, literatures, phamplates, or any other documents shall be submitted in hard copy along with technical bid.
- 2) Calibration reports/certificates, factory test reports/certificates from an accredited agencies/facilities shall be submitted wherever applicable.
- 3) CPRI reserves the right to conduct "predispatch inspection" prior to dispatch at the works of the supplier and the expenditure towards PDI shall be borne by CPRI. However information regarding the readiness of the equipment/machinery for the PDI shall be communicated in writing at least 70 days in advance.