

TECHNICAL SPECIFICATION FOR "FACILITY OF IMPEDANCE TEST AT 500 Hz"
TECHNICAL SPECIFICATION NO. EMT-6796 (QTY-2 Nos)

Minayb

S.N.	DESCRIPTION OF BHEL REQUIREMENT	REQUIREMENT	OFFERED	DEVIATION
1.0	PURPOSE :			
	"Facility for Impedance Test at 500 Hz" shall be required for measurement of impedance of Turbo Generator Rotors of different ratings (up to 1000 MW), during balancing (i.e. in running condition). The facility shall include electronic IGBT based Static Panel for generating 0-1000V, 200A, 500 Hz, 1Φ power supply. Typical Impedance values for 500MW & 600MW Rotor Winding are 17Ω and 10.58 Ω respectively at standstill condition with 500Hz frequency.	Vendor to note.		
2.0	SCOPE :			
	The scope of supply includes design, manufacturing, testing, supply, installation & commissioning of "Facility for Impedance Test at 500 Hz" at BHEL Haridwar.	Vendor to confirm.		
3.0	TECHNICAL SPECIFICATION OF FACILITY FOR IMPEDENCE TESTING AT 500 Hz:			
3.1	Input : 415V ± 10%, 50 Hz. ± 3%, 3Φ, 3 wire system without neutral	Vendor to confirm.		
3.2	Output : 0-1000 V (continuous variable), 200 Amps, 500Hz ± 1%, 1Φ, Sine waveform	Vendor to confirm.		
3.3	Power rating : 200 KVA	Vendor to confirm.		
3.4	Indicating Instruments :- All the instruments mounted on the equipment shall be digital panel meters (LCD/ LED) having accuracy of 1% or better. The equipment shall have instruments for measuring/ monitoring following parameters : a. Input voltage (with Voltage Selector Switch). b. Input current (with Ampere Selector Switch). c. Output voltage. d. Output current. e. Output frequency.	Vendor to confirm.		
4.0	PROTECTION:			
4.1	Input phase sequence protection	Vendor to confirm.		
4.2	Input over voltage, under voltage protection.	Vendor to confirm.		
4.3	Input over load protection.	Vendor to confirm.		
4.4	Output over load protection.	Vendor to confirm.		
4.5	Provision of output voltage preset	Vendor to confirm.		
4.6	Filter to suppress harmonics generated by system in incoming 3 phase supply	Vendor to confirm.		
5.0	DUTY CYCLE:			
5.1	Half hour on/ half hour off at full load.	Vendor to confirm.		
6.0	CONSTRUCTION:			

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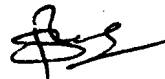
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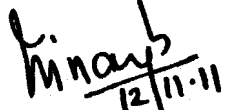
6.1	Equipment shall be natural/ forced air cooled.	Vendor to confirm.		
6.2	Equipment shall be mounted on a single platform.	Vendor to confirm.		
6.3	Equipment shall be supplied with suitable input flexible copper cable with conduit of 20 meter in length.	Vendor to confirm.		
6.4	Equipment shall be supplied with suitable output flexible copper cable with conduit of 40 meter in length.	Vendor to confirm.		
7.0	SOURCE OF ELECTRIC SUPPLY:			
7.1	The equipment shall be suitable to operate at $415 \pm 10\%$ V, $50 \pm 3\%$ Hz, 3 phase, 3 wire system. BHEL will provide this power supply to incoming of control panel. All other cablings are in the supplier's scope of supply.	Vendor to confirm.		
8.0	ENVIRONMENTAL CONDITION:			
8.1	The equipment shall be suitable to operate at ambient temperature from 0° C to 45° C and relative humidity up to 95%.	Vendor to note.		
9.0	INSTALLATION AND COMMISSIONING :			
9.1	The supplier shall be fully responsible for installation and commissioning of the Equipment at BHEL works, Haridwar.	Vendor to confirm.		
9.2	Successful Prove out on Rotor of 600MW provided by BHEL, at BHEL works, Haridwar.	Vendor to confirm.		
10.0	SPARES :			
10.1	Mandatory Spares:- Spares required for 2 years trouble free operation are to be quoted separately, giving description, quantity and price of each item separately.	Vendor to confirm.		
10.2	Optional Spares :- (a) Electronic cards/ modules, special devices, relay, contactor, timer, fuses, set of power devices i.e thyristor / IGBT etc one number of each type used in the equipment. (b) Party shall quote separately for "Annual Maintenance Contract" for 3 years mentioning no. of visits per year with / without spares.	Vendor to confirm.		
11.0	DOCUMENTS:			
11.1	3 Sets of operation and maintenance manuals including various circuit diagrams shall be supplied along with the equipment. In addition to operation and maintenance instructions these manuals shall also include following information :	Vendor to confirm.		
11.1.1	Test certificates.	Vendor to confirm.		
11.1.2	Final circuit diagrams	Vendor to confirm.		
11.1.3	List of spare parts with item wise price and their make	Vendor to confirm.		

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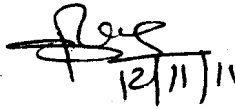




1.1.4	Laying and wiring diagram.	Vendor to confirm.		
11.1.5	Calibration Certificates of all the instruments	Vendor to confirm.		
11.1.6	Details like make, model and specifications of various bought out items	Vendor to confirm.		
12.0	PAINTING:			
12.1	Equipment shall be painted to shade apple green as per IS:5.	Vendor to confirm.		
13.0	PRE-DESPATCH INSPECTION:			
13.1	"Facility for Impedance Test at 500 Hz" will be inspected by BHEL representative at suppliers' works prior to dispatch. Vendor shall impart training for operation/ maintenance of the equipment at their works during pre-dispatch inspection.	Vendor to confirm.		
14.0	GUARANTEE:			
14.1	Facility for Impedance Test at 500 Hz" shall be guaranteed for 12 months after successful commissioning at our Plant as per clause 9.2.	Vendor to confirm.		
15.0	PACKING:			
15.1	The equipment shall be suitably packed to prevent damage during transit and storage. All the surfaces shall be properly conserved before dispatch.	Vendor to confirm.		
16.0	GENERAL:			
16.1	Supplier to give various details like make, model and specifications of various bought out items, circuit diagram and complete details of the equipment quoted, in their offer.	Vendor to confirm.		
16.2	Supplier shall submit catalogue of the equipment along with offer	Vendor to confirm.		
16.3	Supplier shall submit clause wise information/ confirmation.	Vendor to confirm.		
16.4	Vendor shall indicate the service facility and service centre in Northern India.	Vendor to confirm.		


 (N.S.RANA)
 Sr. MANAGER (EMT)


 (B.S.GARG)
 Sr. ENGR(WEX-CNC)


 (SHEESH RAM)
 AGM (OSBT)

Qualifying Conditions for "Facility for impedance test at 500 Hz" :-

Only those vendors (OEMs) should quote who have commissioned at least one frequency converter of capacity 400 Hz or more and power rating 50 KVA or more, in the past ten years (on the date of opening of Tender) and referred facility is presently working satisfactorily for more than one year after commissioning (on the date of opening of Tender).

The following information should be submitted by the vendor about the companies where referred facility have been supplied. This is required from all the vendors for qualification of their offer.

	Vendor to accept & confirm		
1. Name of the customer / company where referred facility is installed.	Vendor to inform		
2. Complete postal address of the customer.	Vendor to inform		
3. Month & Year of commissioning	Vendor to inform		
4. Parameters of facility and application for which this facility is used.	Vendor to inform		
5. Name and designation of the contact person of the customer.	Vendor to inform		
6. Phone, FAX no. and email address of the contact person of the customer.	Vendor to inform		
7. Performance certificate from the customers regarding satisfactory performance of referred facility supplied to them (Original Certificate or Through E-mail directly from the customer). The original performance certificate may be returned after verification by BHEL, if required.	Vendor to submit		
8. BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.	Vendor to accept & confirm		

Kim
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