S. N. Bose National Centre for Basic Sciences

Block JD, Sector III, Salt Lake, Kolkata – 700098

(An autonomous national centre funded by the Department of Science & Technology, Government of India)

Tender No.SNB/PUR/OT/25/035 Date: 07/03/2014

OPEN TENDER

Sealed tender in two parts (separate technical bid and price bid) are invited in the name of Director, S. N. Bose National Centre for Basic Sciences from only reputed & original manufacturer or its sole authorized distributor/dealer with original manufacturing authorization certificate for design, engineering, manufacturing, testing at manufacturer's works and satisfactory delivery to S. N. Bose National Centre for **Transformer**, Item no.**01**. The detailed technical specifications and terms & conditions can be obtained from the website: *http://newweb.bose.res.in/ InfoAnnouncements/Tender.jsp* The sealed tenders must reach this office within **27th March, 2014**.

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Registrar

S. N. Bose National Centre for Basic Sciences

Block JD, Sector III, Salt Lake, Kolkata – 700098

(An autonomous national centre funded by the Department of Science & Technology, Government of India)

NOTICE INVITING TENDER

Tender No.SNB/PUR/OT/25/035 Date: 07/03/2014

Sealed tenders are invited for the equipment as per the details enclosed from the reputed, established and competent manufacturers / suppliers in two bids – technical and financial. The details of tender documents are as follows:-

1.	*Name of office inviting tender*	S.N. Bose National Centre for Basic Sciences Block JD, Sector III, Salt Lake, Kolkata – 700098
2.	*Name of the equipment*	**Transformer**
3.	*Specifications of the equipment*	Can be obtained / downloaded from our website address: http://newweb.bose.res.in/ InfoAnnouncements/Tender.jsp
4.	*Separate bid for Part-A: Technical and Part-B: Commercial*	One large envelope having two smaller envelopes containing separately – Part-A: Technical bid and Part-B: Commercial bid need to be submitted. Tender ref. no. and item name should be mentioned on top of the large envelope. Two smaller envelopes should be superscribed Technical bid / Commercial bid as the case may be.
5.	*Submission of Tender*	The tender documents duly filled in arranged and sealed in aforesaid manner should be sent to: The Director, at the address given under Sl.No.1 above so as to reach him within 27th March, 2014. The envelope should be superscribed – "Item name: **Transformer**, Item no.**01** against Advt. No. SNB/PUR/OT/25/035 dtd:07/03/2014." The commercial bid of only technical qualified tenders will be opened in presence of representative of the bidders. The technical bids will be opened and evaluated by the Centre internally.
6.	*Eligibility of bidder to participate in the tender*	Original Equipment Manufacturer (OEM) or its Sole Authorized Business Distributor/Dealer shall be able to bid with original authorization from OEM. No assemble or reseller shall be considered.
7.	*Opening of Commercial bid*	The Commercial bid will be opened in the presence of Tenderers/ their representatives. Technically qualified bidders will be intimated after technical selection internally.
8.	*Documents to be attached along with the tender*	All the documents mentioned in the tender document, Annexure I along with a detailed users list of the quoted item including their names, addresses, contact nos., email addresses etc. to be enclosed with the technical bid.

This Centre will not be responsible for postal or any other delay and the **Authority of the Centre reserves the right to accept or reject any or all tenders without assigning any reason thereof**. Tenders / offers sent by fax / email will not be considered and would be rejected.

DIRECTOR
S.N. BOSE NATIONAL CENTRE FOR BASIC SCIENCES

General Terms & Conditions:

1) The bid should be submitted in two bid system each of which is to be submitted in separate envelope. Main envelope should contain the "**Technical Bid**" mentioning the detailed technical specification and terms & condition, except price and the "**Price Bid"** should be enclosed in another envelope containing price of the quoted item in the prescribed format only. Both the envelopes should be separately sealed and sent in a large envelope which should be marked with tender reference number and name of the equipment. Separate bid with applicable EMD should be submitted for each of the items in the technical bid.

2) Quotation for each item should be submitted separately. Combined bids or combined EMD will not be entertained.

3) The tenderer should have high technical, financial reputation with sufficient experience and capable enough for satisfactory supply of similar type of equipment to actual users. Documentary evidence should be submitted in this respect with the technical bid.

4) Technical offer should be complete in all respect indicating detailed technical specifications of the offered items, make, model, duties, taxes, delivery period, gross and net weight of the consignment, together with the descriptive leaflet/catalogue/pamphlet/manufacturer's brochure, etc.

5) The offers shall remain valid at least for a period of 90 days. The period starts from the date of closing of tender submission.

6) The Institute shall not be responsible for delay, loss or non-receipt of the tender through post/Air Mail

7) The aforesaid Open Tender is being issued with no financial commitment and purchaser reserves the right to change / vary any item or items thereof at any stage.

8) No tenderer shall be entitled for any compensation what so ever for rejection/non consideration of their tender.

9) Invitation of tender does not constitute any right or claim for issue of purchase order to the tenderer.

10) Only Price Bids will be opened in presence of the technically qualified bidders or their authorized representative who choose to attend on the date and time informed to them after opening of technical bids and its evaluation by the Centre internally.

11) The Centre will not be responsible for any misprinting by the newspapers concerned and inaccessibility of the downloading facility for any reason whatsoever and in that case the tenderer(s) should contact to the tendering authority to verify the fact in case of confusion.

12) If any information furnished by the tenderer is found incorrect or false at a later stage he shall be liable to be debarred from awarding the contract.

13) A copy of full tender document is to be submitted along with technical bid duly signed & stamped on all pages as an acceptance of all terms & conditions mentioned in tender documents.

14) a) Payment term: 90% of order value will be paid after delivery at site on satisfactory visual inspection.

b) Balance & final payment: 10% will be withheld as security deposit till expiry of warranty period which may be released against submission of bank guarantee from any nationalized bank

of India of equivalent amount by the supplier, which shall be valid for 18(eighteen) months from the date of its issue.

15) Vendors are requested to submit an Earnest Money Deposit (EMD) for the item as given below, in the form of Demand Draft in favour of "S. N. Bose National Centre for Basic Sciences", payable at Kolkata. Bid without EMD will not be considered and shall be rejected. EMD should be enclosed with the technical bid only.

16) EMD of unsuccessful bidder will be refunded without interest after opening of the Commercial bids of the technically qualified vendors. In case of successful bidder EMD will be retained till successful delivery of the item at the Centre.

Sl. No.	Description of Items	Qty	Unit	EMD Amt.
1.	**Transformer** 11 KV/433 V, 630 KVA ONAN type transformer with ON Load tap changer & RTCC, AVR all complete as per detailed technical specification mentioned in the tender document.	Set	2	Rs.68,000.00

17) EMD will be liable to be forfeited if the vendor withdraws or found anything wrongful in the tender documents at any point of time after submission of bids.

18) Centre reserves the right to reject any or all bids without assigning any reason thereof.

19) Warranty: The items will be covered under onsite replacement warranty for a period of 18 months from the date of full & satisfactory delivery and its acceptance at the Centre.

20) Annexure – I of the tender document should be filled up, sealed & signed and submitted with the technical bid along with all relevant documents mentioned therein.

21) In case of any query please contact Mr.Supriyo Ganguly or Mr.Ganesh Gupta, JE(Electrical) over phone or in person on any working day during office hours of the Centre.

Annexure I

- The following form should be submitted with the technical bid duly filled and signed.
- **Relevant documents must be enclosed with the technical bid as per Sl. no. 01 to 13.**

S/N	PARTICULARS	Yes/No	REMARKS
01	Technical bid & Price bid duly sealed & signed enclosed in separate envelopes as instructed.		
02	Contents of Technical bid (a) Technical details as per specification enclosed with technical bid ⇨ (b) Technical Compliance Statement to be prepared in a separate sheet ⇨ (and any deviation should be mentioned specifically) (c) Literature/Manual of the offered item ⇨ (d) Current Authorization Certificate from the Principal Manufacturer ⇨ (e) Name, address, email & ph. no. of users in India. ⇨		
03	Copy of Trade License, VAT, PAN, Service Tax Registration no. enclosed with the technical bid.		
04	Credentials of past experience		
05	Income Tax Clearance Certificate / copy of income tax return filed / PAN Card		
06	Copy of Proprietary Certificate of the firm in case applicable.		
07	Open Tender no. should be mentioned on top of all quotation envelopes		
08	Validity of Quotation should not be less than 90 days from the date of submission		
09	After sales maintenance procedure of the offered item to be mentioned		
10	Contact details of after sales service centres in Kolkata to be mentioned		
11	Bank details of the beneficiary to be mentioned		
12	In case of any defect found after receipt of material or in case of any deviation from the specifications or in case of any operational defect found during the warranty period, any part or the entire material is to be replaced by the supplier at no extra cost to the Centre.		
13	Whether your company has been blacklisted by any Central/State Govt. organization.		

Note: Offer received without any of the relevant information / certificate / document asked in the above sl. nos. 01 to 13 may not be considered. The Centre reserves the right to accept or reject offer of the tenderer. The Centre's decision shall be final and binding on the tenderer. Attached documents should be duly marked.

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Seal & Signature with date

SATYENDRA NATH BOSE NATIONAL CENTRE FOR BASIC SCIENCES
[Funded by the Department of Science & Technology, Government of India]
BLOCK JD, SECTOR III, SALT LAKE, KOLKATA- 700 098
PHONE: +91-(0) 33-2335 5706-08, 2335 3057/61, 2335 0312/1313
FAX: +91-(0) 33-2335 3477/1364
EMAIL: santosh@bose.res.in

Price Bid for Transformer

"*Design, Engineering, Manufacture, Testing at Manufacturer's Works and Supply & Delivery to SNBNCBS."*

Sl No.	Description of Items	Qty	Unit	Unit Rate (in Rs.)	Tot. Amt. (in Rs.)
1.	**Transformer** 11 KV/433 V, 630 KVA ONAN type transformer with ON Load tap changer & RTCC, AVR all complete as per detailed technical specification.	Set	2 nos.		
Item Total					
Packing, Forwarding, Freight, Insurance, etc.,					
CST/VAT @ ……%					
Others (if any) should be indicated					
Net F.O.R price up to S. N. Bose National Centre – Total (in words):					

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Seal & signature with date

❖ Note: Centre is exempted from payment of Central Excise Duty against DSIR certificate. CEDEC will be provided with the Purchase Order if required.

General Technical Parameters

1. Transformer

1.	Name of the manufacturer	Schneider/ABB/Siemens/Kirloskar/Crompton Greaves/VoltAmp Borada
2.	Type	Indoor type ONAN type
3	KVA Rating	630 KVA
4	No. of phases	3
5	Frequency	50 Hz
6	Rated Voltage (HV)	11 KV
7	Rated Voltage (LV)	0.433 KV
8	Connection (HV)	Delta
9	Connection (LV)	Star
10	Vector Group	Dyn 11
11	Winding (HV)	Copper
12	Winding (LV)	Copper
13	Insulation Level (Impulse withstand) (KV peak)-HV	75
14	Insulation Level (Impulse withstand) (KV peak)-LV	As per Manufacturer's Specification
15	Insulation Level (Power frequency withstand) (KVrms) – HV	28
16	Insulation Level (Power frequency withstand) (KVrms) – HV	3
17	Tapping	
	(a) Range	As per Manufacturer's Specification
	(b) No. of Steps	17
	(c) On HV	As per Manufacturer's Specification
	(d) Tap Changer type	On Load Tap changing (OLTC)
18	Temperature Rise of Oil/Winding over design ambient Temperature of 50 °C	50-55 °C
19	Short Circuit thermal withstand time	2 second
20	Efficiency at unity power factor	As per Manufacturer's Specification
	(a) Full Load	≥98 %
	(b) ¾ Load	≥98 %
	(c) ½ Load	≥98 %
21	Iron Losses at normal voltage	As per Manufacturer's Specification
22	Copper losses at normal voltage ratio, at full load	As per Manufacturer's Specification
23	Regulation at 0.8 p.f at 75 deg.C	4% or less
24	Regulation at unit p.f at 75 deg.C	2% or less
25	Impedance at normal voltage ratio at 75 deg.C	4.5 %
26.	Over Load	The transformers are capable of carrying overload of 25 %

Detailed Technical Specification

1. TRANSFORMER

1.1 General Construction

The oil filled Transformers shall comply with the following Indian Standards as amended up to date:
(i) IS 2026 - Part I to V power transformers.
(ii) IS 335 - Transformer oil
(iii) IS 10028 (Part II & III) - Installation and Maintenance of Transformers.
(iv) IS 2099 - Bushings
(v) IS 2705 - Current Transformers.
(vi) IS 6600 - Guide for loading of oil immersed transformers.

1.2 Insulation Oil

Insulation oil shall conform to IS 335. Transformer oil to be supplied with initial fill of filtered oil.

1.3 General Requirements

The transformer shall be indoor type. Unless otherwise specified the transformer in addition shall have thermal and dynamic ability to withstand external short-circuit as per clause 9 of IS 2026 (Part I) 1977.

1.4 Capacity and Rating

The KVA ratings for three phase transformers is 630 kVA
Continuous rating specified shall be irrespective of tapping position.

1.5 Temperature Rise

The reference ambient temperatures assumed for the purpose of this specification are as follows: -
(a) Maximum ambient air temperature 50 deg C.
(b) Maximum daily average ambient air temperature 40 deg C.
(c) Maximum yearly weighted average ambient temperature 32 deg C.
(d) Minimum yearly weighted average ambient temperature (-) 5 deg C.

The temperature rise at the above conditions and at the altitude not exceeding 1000 meters shall be as follows: -
By resistance method 55 deg C (maximum temperature being 95 deg C).
By thermometer 50 deg C.

1.6 On Load Tap Changing Device

On Load Tap changing device shall be provided on H.V side, circuit type. It shall be designed for bi-directional operation and shall be of self-positioning type and shall have 17 taps. Each tap @1.5%

1.7 Voltage Ratio

The input voltage of transformer shall be 11 KV±1% and Output voltage shall be 433V±1%.

1.8 Vector Group

The winding connections shall conform to vector group Dyn11.

1.9 Cooling

The transformer shall be oil immersed natural air-cooled type (ONAN).

1.10 Accessories

The transformer shall be a single tank type with termination of 4X3.5CX300 sq.mm. cable at MV side and 1X3CX150 sq. mm. cable at HV side.. The MV side shall be suitable to receive bus bar trunking or MV cable inter-connection suitable for full load current of the transformer i.e. suitable termination arrangement to be provided.

1.11 Fittings

The transformer shall be complete with the following fittings: -
(a) Oil conservator with oil level indicator, minimum level marking and drain plug.
(b) On load tap changer with position indicator.
(c) Thermometer pocket with plug.
(d) 100 mm dial type /stem type thermometer with metal guard Dial type
thermometer may have max. temperature indicator and resetting device.
(e) Lifting lugs for all transformers.
(f) Bi-directional Rollers.
(g) Rating diagram and terminal marking plate.
(h) Explosion vent.
(i) Additional Neutral separately brought out on a bushing for earthing.
(j) Earth terminals (2 Nos.) for body earthing.
(k) Valves for filtration, drainage and filling etc. with necessary plugs.
(l) Radiator assembly.
(m) Silica gel breather.
(n) Air release plug.
(o) First filling of oil to IS 335/1993 including make-up fill during installation.
(p) Facility to connect up Buchholtz relay.
(q) Inspection covers on tank cover for access to terminal connections.
(r) Cable box terminations.
(s) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc.

1.12 Explosion Vent

Explosion vent or pressure relief device shall be provided of sufficient size for rapid release of any pressure that may be generated within the tank and which might result in damage to the equipment. The device shall operate at a static pressure less than the hydraulic test pressure for transformer tank and complete with breather, conservation tank as required as per IS.

1.13 Accommodation for Auxiliary Apparatus

For restricted earth fault protection, facilities shall be provided for the mounting of a neutral current transformer.

1.14 Rating and Diagram Plates

The following plates shall be fixed to Transformer in a visible position.
(a) A rating plate of weather proof material bearing the data
specified in the appropriate clauses of IS: 2026/1977.
(b) A diagram plate showing the internal connection and also the voltage vector relationship of the several windings in accordance with IS: 2026-1977 and a plan view of the transformer giving the correct physical relationship of the terminals.

1.15 Joints and Gaskets

All gaskets used for making oil tight joints shall be of proven material
such as granulated cork bonded with synthetic rubber gaskets or synthetic rubber or such other good material.

1.16 Gas and Oil Actuated (Buchholtz) Relays

Buchholtz Relay shall be provided for transformers of capacity 630 KVA.
The design of the relay mounting arrangements, the associated pipe work shall be such that mal-operation of the relays shall not take place under normal service. The pipe work shall be so arranged that all gas arising from the transformer shall pass through the gas and oil-actuated relay. The oil circuit through the relay shall not form a delivery path in parallel with any circulating oil pipe, nor shall it be tied into or connected through the pressure relief vent, Sharp bends in the pipe work shall be avoided.
All wiring connections, terminal boards, fuses and links etc. connected with gas actuated relays shall be suitable for tropical atmosphere. Any wiring liable to be in contact with oil shall have oil resistant insulation and the bared ends of stranded wire shall be sealed together to prevent seepage of oil entering connection boxes used for cables or wiring.

1.17 Cable Box

Cable box shall not be mounted on the tank covers. It shall be feasible to remove the tank covers for inspection during maintenance etc. without recourse to breaking the joints or disturbing the cables already terminated. Necessary removable links in oil approachable through inspection cover in tank cover etc. after lowering oil shall be provided for test purpose.

1.18 Parallel Operation

There will be provision for parallel operation of transformers, the transformers shall have the same percentage impedance, same voltage ratio, same vector group, phase sequence etc.

1.19 Tests

Tests at Works:

All routine and other tests prescribed by IS 2026 shall be carried out at the manufacturer's works before dispatch of the transformer in the presence of inspecting officer/Centre. Copies of the test certificates shall be furnished to the Centre. In addition to the prescribed routine tests, temperature rise test shall be invariably done on one transformer of each design. A copy of the impulse test certificate done on the same type/design of the transformer shall be furnished in accordance with IS for purpose of record. If no impulse test was done in an earlier unit of the same design and capacity, two transformers will be subjected to impulse test in consultation with the Inspector at the manufacturer/supplier's cost.

Copies of the certificates for pressure test for bushings, and type test for short circuit shall be supplied to the Centre.

The following tests are to be particularly done at works before cable jointing or connecting up the bus bar trunking.

(a) Insulation test between HV to earth and HV to MV with 5000 volts Megger.
(b) Insulation test between MV to earth with 500 volts Megger.
(c) Di-electric strength Test on oil.
(d) Buchholtz relay operation by simulation test when fitted.
(e) Functioning test of WTI & OTI
(f) Turn ratio test
(g) Winding resistance test

(h) Core loss & load loss test
(i) Separate source voltage test:-

HV To MV & EARTH - 28 KV for one minute withstood & LV To HV & EARTH 3 KV for one minute withstood.

All test results are to be recorded and reports should be submitted to the owner.

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