

SHRI GURU GOBIND SINGHJI
INSTITUTE OF ENGINEERING & TECHNOLOGY,
VISHNUPURI, NANDED - 431 606



e-TENDER DOCUMENTS

For

***Supplying, Erecting, Testing, Commissioning of
Multi Circuit Range SF6 insulated vacuum Ring
main Unit***

For

EMC Section

e-Tender Notice No.

SGGSIE&T/Stores-2540/SF6 gas insulated vacuum Ring main Unit/EMC/2017-18 Date **27/10/2017**

e-Tenders available on

Web sites <https://mahatenders.gov.in>

Institute Web site <http://www.sggs.ac.in>

SGGSIE&T/Stores-2540/SF6 gas insulated vacuum Ring main Unit/EMC/2017-18

Price of e-Tender Document Rs. 3,000/-

**SHRI GURU GOBIND SINGHJI
INSTITUTE OF ENGINEERING & TECHNOLOGY,
VISHNUPURI, NANDED. 431 606**

File No. SGGSE&T/Stores-2540/SF6 gas insulated vacuum ring main unit/EMC/2017-18

Date: 27/10/2017

NOTICE FOR INVITATION OF e-TENDER

1. The institute invites online tenders/quotations for **Supplying, Erecting, Testing, Commissioning of Multi Circuit Range SF6 insulated vacuum Ring main Unit for EMC Section** at our institute from **Manufacturers, Authorised Dealers, suppliers** who have registered under Shop Act, CGST/SGST Registration Certificate as **manufacturer / Authorised Dealers, suppliers of the same material/equipment;** details as per the e-Tender Notice published in News paper. (**Press note** enclosed here with).
2. The Terms and conditions, which are Govern the contract made on behalf of the institute, are also enclosed.
3. The Tenderers are requested to read the instructions in the e-Tender; Terms and conditions carefully before quoting the rates in quotations / Tender Schedule and comply with the same.
4. The Tenderer should satisfy & comply all the Terms & conditions and instructions, which are mentioned in the e-Tender Notice and in this e-Tender document and there after amendments made if any.
5. The institute reserves the right to delete any item or items or to increase or to decrease the quantity of any item or items from the e-Tender Schedule.
6. All the rights to increase or decrease the quantity of the required item is reserved, the right to cancel any item or items is reserved with the institute.
7. **The right to accept or reject any / or all the tenders/quotations from any or all parties without assigning any reason is reserved.**

Sd/-
DIRECTOR
Shri Guru Gobind Singhji
Institute of Engg. & Tech.
Vishnupuri, Nanded.

Supplying, Erecting, Testing, commissioning of Multi Circuit Range SF6 insulated vacuum Ring main Unit for EMC Section



Press note
SHRI GURU GOBIND SINGHJI
INSTITUTE OF ENGINEERING AND TECHNOLOGY,
VISHNUPURI, NANDED 431 606

File No. SGGsIE&T/Stores-2540/SF6 gas insulated vacuum ring main unit/EMC/2017-18

Date: 27/10/2017

e-TENDER NOTICE

Online Tenders / quotations are invited for **Supplying, Erecting, Testing, Commissioning of Multi Circuit Range SF6 insulated vacuum Ring main Unit** for **EMC Section** of this institute from manufacturers / Authorised Dealers, suppliers those who have registered under Shop Act, CGST/SGST Registration Certificate for required goods. The e-Tender documents containing all detailed **specification of the Equipments & Tender's Terms and conditions** will be available on the web sites <https://mahatenders.gov.in> & <http://www.sggs.ac.in>. Vendors can download and submit their tenders online only from <https://mahatenders.gov.in> **e-tender fees Rs. 3,000/-**.

EMD is Rs. **32,000=00**

The tender EMD and Tender Fees should be paid online using given payment options on mahatenders.gov.in

All tenders should be submitted on or before **online key schedule** & technical bids will be opened on **as per key schedule**.

The right to accept or reject any or all the quotations / tenders from any or all parties without assigning any reason is reserved.

Sd/-
Director

Supplying, Erecting, Testing, commissioning of Multi Circuit Range SF6 insulated vacuum Ring main Unit for EMC Section

File No. SGGSE&T/Stores-2540/SF6 gas insulated vacuum ring main unit/EMC/2017-18

Date: **27/10/2017**

Tender Schedule : (Key Dates)

Seq. No.		
1	Tender Publishing	27-10-2017
2	Bid Submission Start	27-10-2017
3	Bid Submission End	09-11-2017
4	Technical Bid Opening	13-11-2017
5	Financial Bid Opening	After preparation of Technical summery c

e-TENDERING PROCEDURE

Tender Information:

Tender Forms can be available on the e-Tendering Portal Maharashtra Government i.e. <https://mahatenders.gov.in>.

All vendor/bidder are cautioned that tenders containing any deviation from the contractual terms and conditions, specifications or other requirements and conditional tenders will be treated as nonresponsive. The tenderer should clearly mention in forwarding letter that his offer (in envelope No. 1& 2) does not contain any conditions, deviations from terms and conditions stipulated in the tender.

Vendor/bidder should have valid Class II / III Digital Signature Certificate (DSC) obtained from any Certifying Authorities. In case of requirement of DSC, interested Bidders should go to <http://maharashtra.etenders.in/mah/DigitalCerti.asp> and follow the procedure mentioned in the document 'Procedure for application of Digital Certificate'.

Vendor/bidder should install the Mandatory Components available on the Home Page of <https://mahatenders.gov.in> under the section 'Mandatory Components' and make the necessary Browser Settings provided under section 'Internet Explorer Settings'

Guidelines to Bidders on the operations of Electronic Tendering System on <https://mahatenders.gov.in>

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VISHNUPURI, NANDED. 431 606

File No. SGGsIE&T/Stores-2540/SF6 gas insulated vacuum ring main unit/EMC/2017-18

Date: 27/10/2017

INSTRUCTIONS TO TENDERERS

1. The Tenderer should submit quotations / Tenders in online sealed envelope. Please note No EMD exemption will be considered and all interested bidder have to pay **EMD Rs. 32,000=00** by online payment gateway
2. We are giving here with Tender Schedule with **specifications of the Supplying, Erecting, Testing, Commissioning of Multi Circuit Range SF6 insulated vacuum Ring main Unit for EMC Section of the institute. Your quoted goods/material & accessories/allied components should be strictly as per our specifications**, and should be given with detailed specifications in writing on your letter head **along with catalogue.**
- 4 **Tenders / Quotations received late will not be considered.**
- 5 Online super scribed **“Quotation for Supplying, Erecting, Testing, Commissioning of Multi Circuit Range SF6 insulated vacuum Ring main Unit for EMC Section”**
- 6 The Technical Bids will be opened and scrutinized online as per key dates, technically qualified vendors price bid will get opened as per online schedule.
- 7 All the terms and conditions are enclosed herewith.
- 8 The Tenders / quotations should be strictly **as per the G.R. of Maharashtra Govt.** for two Bid systems, bidder should quote rate as per the specification provided by Tender calling authority.
- 9 Procedure for submission of quotations: -
Tenderer should note that they will have to submit as per online envelopes
- 10 **a) ENVELOPE No. 1 [TECHNICAL TENDER ENVELOPE / TECHNICAL BID]:** The first Envelope is T1 ie **“ENVELOPE No. 1” For Supplying, Erecting, Testing, Commissioning of Multi Circuit Range SF6 insulated vacuum Ring main Unit for EMC Section**” shall be consisting of the following documents.
 - i) The attested copies of the Registrations under Shop Act and CGST/SGST Registration Certificate; Registration should be attached along with Envelope No. 1.
 - ii) The statement as per above clause No.8 in following format.

Specifications as per Tender Notice	Acceptance of full filling specifications
1	2

- iv) **CGST/SGST Registration No. [attested copy] should be attached with the technical bid. [Envelope No.1].**
- v) **Original manufacturers certificate** as they are manufacturing the quoted equipments.
- vi) **Authorised Dealership Certificate** from manufacturer. If necessary
- vii) **Income Tax Returns “SARAL” certificate.**

b) ENVELOPE No. 2 [Commercial Bid / envelope for Rates]: -

Its available with tender document in excel format i.e. BOQ.

Tenderer should fill and upload online only given BOQ

11 The Tenderer should note that in case Envelope No. 1 does not full fill any requirement like tender fees, EMD, registration of Shop under Shop Act and CGST/SGST Registration No. Authorisation from Manufacturer or any documents required as per technical bid the Envelope No. 2 will not be opened and the offered quotation will be liable for rejection.

Supplying, Erecting, Testing, commissioning of Multi Circuit Range SF6 insulated vacuum Ring main Unit for EMC Section

12 The tenderer should **quote the rates on quotation/our enclosed Tender schedule duly signed online with valid digital certificate.** Vendors should not quote the rates anywhere directly or indirectly in Envelope No. 1.

13 If there is any correction in quotation, it is allowed at bid preparation stage only, once time for bid preparation is over no corrections will be allowed.

14 Tenderer must follow all instructions, terms and conditions. If he fails to follow any of the conditions, and instructions, his / her Tender / Quotation are to be liable for rejection.

15 Tenderer, whose Offer is found to be the best as per clause No. 1 & as per our specifications, will be informed about the same, He will have to deposit 5% amount of total quantity as Security Deposit (S.D.); after receipt of S.D. orders will be placed.

16 If the Tenderer is manufacturer or authorised dealer and the item is the PROPRIETARY item then they should furnish the “PROPRIETARY ITEM CERTIFICATE” along with the quotation /Tender.

Sd/-
DIRECTOR
SGGSIE&T NANDED

**SHRI GURU GOBIND SHINGHJI INSTITUTE OF ENGINEERING & TECHNOLOGY,
VISHNUPURI, NANDED. 431 606**

File No. SGGSE&T/Stores-2540/SF6 gas insulated vacuum ring main unit/EMC/2017-18

Date: 27/10/2017

TERMS AND CONDITIONS

1. The rates should be quoted online as F.O.R. Destination at our **Vishnupuri, Nanded.**
2. CGST/SGST if any tax, Levis, Freight, Packing, Forwarding and Insurance Charges etc. etc. that must be incorporated in quoted amount.
3. No additional amount will be considered or paid excluding rates quoted by bidder.
4. The validity period for the rates offered should be clearly mentioned and it should be minimum 180 days from the date of opening of a items quoted should be confirms our specification, in addition, please furnish your detailed specifications against each item, the relevant catalogue/pamphlet should be necessary to accompany with the quotations; if any deviations in the specifications then please submit the statement duly signed as mentioned in "Instructions to Tenderer", clause No.8 and clause No. 9 (iv).
5. The delivery period should be clearly stated.
 - a) Liquidated Damages: Firm should have to quote the delivery period clearly from the date of receipt of order or confirmed order.
 - b) If supplier fails to supply the ordered material within the scheduled delivery period, for late delivery of goods we will entitled to recover the liquidated damages as a sum equal to ½ percent of the price of stores delivered late per week.
6. Extension of Delivery period: The delivery period as mentioned in purchase order may be extended.
 - i) If the completion of supply of goods/components/equipments/etc is Delayed due to reasons such as act of God, act of Public enemy, Wars, Act of Government, Fires, Floods, Epidemics, Quarantine, Restrictions, Strikes and Freight embargoes the delivery period may be extended.
 - ii) Supplier will have to give notice within 10 days to this institute in writing of his claim for an extension of the delivery period. After receipt of such notice and verification; if necessary the delivery period will be extended but without prejudice to other terms and conditions of the purchase order and Tender notice/Tender document's conditions.
 - iii) If supplier has delivered material even after expiry of extended delivery period then we will be entitled to recover the liquidated damages.
7. The instructions manual for each equipment/components/machinery/material should be supplied separately with each item/s supplied.
8. Supplier's Technician/Engineer on free of cost must carry out the demonstration and installation at our site.
9. The institute reserves the right to accept any/all quotations, reject any/all quotations and to order any of the item/s in any quantity without assigning any reason.
 - a) The institute reserves the right with itself to delete any item/s from Tender Enquiry.
10. The items will be checked at the institute and acceptance is subject to the approval of the institute.
11. If the supply of goods/equipments/material or any part there of is rejected by the institute, the supplier will have to bear all expenses incurred in the matter including all charges for return and replacement of the items. The rejected material/ equipments/parts of equipments should be got it back by supplier on their own cost.

12. PAYMENT CONDITION:-

[Send Your Bank Details i. e. name of Bank, IFSC code, mobile number etc]

*** For equipments and instruments/components etc those items are required to installed and demonstrated at this institute:**

I. 90% payment on demonstration of satisfactory working and installation of instruments/equipments/goods/components and balance 10% after 30 days for balance 10% payment firm has to submit separate bill/invoice.

*** For the items those need not to install and demonstrate at this institute:**

File no. No. SGGSE&T/Stores-2540/SF6 gas insulated vacuum Ring main Unit/EMC/2017-18

Supplying, Erecting, Testing, commissioning of Multi Circuit Range SF6 insulated vacuum Ring main Unit for EMC Section

- II.** 100% payment will be released after receipt of material in good condition and approved by this institute.
13. Inspection of Goods: - The ordered equipments/goods/instruments will be inspected if required by our representative at your workshop/show room before despatch of goods.
- a) The supplier should inform the date of inspection in advance by 10 days.
- b) The supplier will have to provide free lodging and boarding facilities to our representative who would carry out inspection.
14. The equipments should be guaranteed for minimum one year from the date of installation of the goods.
15. The repairs within the guarantee period must be carried out at own cost of supplier.
16. If any damages in transit, that should be repaired / or equipments should be replaced by the supplier of their own cost.
17. The gate pass of excise duty must be supplied in duplicate.
18. Demurrage: - If any demurrage will be charged due to any delay any other reasons from supplier; then the same should be heard by supplier or it can be deducted from their final payment.
19. Mode of Despatches: - Equipments/Stores/Components/Machineries should be despatched by Railway or Road Transport as per availability of facilities. The road transporters office / Godown must be available at Nanded City. A copy of the invoice / bill and packing list should invariably be kept inside each of the packages.
20. The package should be marked as follows
- I) Consignee: - Director, S.G.G.S. Institute of Engg. and Tech., VISHNUPURI, NANDED – 431 606 (MAHARASHTRA)
- II) Purchase Order No. _____ Date _____ Department. _____ R.R. /L.R. No. _____ Number of cases/packages _____ S.G.G.S. Institute of Engineering and Technology, VISHNUPURI, NANDED (M.S.)
Destination: Nanded.
21. Cancellation of purchase orders: - institute reserves the right to cancel the purchase orders on following grounds.
- a) If supplier fails to supply the goods/equipments/machinery/components within the delivery period without confirmation of extension of the period from the institute or without obtaining the permission for extension of delivery period.
- b) If the supplier fails to supply the goods within extended delivery period.
- c) If supplier fails to follow the terms & conditions and instructions as mentioned in the tender documents or conditions mentioned in purchase orders.
- d) If supplier found defaulter.
22. The institute has reserves the right to place an order for any party who is ready to supply on lowest rate for the items cancelled the order as above clause 21, and institute has reserves the right to place an order on 2nd lowest rate if any supplier not ready to supply on 1st lowest rate for items which order cancelled (which was placed on 1st lowest but party fails to supply).
- 23. Security Deposit:** - Successful tenderer will be informed that their quotation/Tender rates are acceptable to us, such Tenderer should deposit the **5% value** of the equipments/order value; in form of Demand Draft/Bank Guarantee in favour of Director, S.G.G.S.I.E.& T., Nanded, payable at State Bank of India, main branch, Vazirabad, Nanded or any Nationalised Bank at Nanded. The Security Deposit will be refundable after completion of 1 year from the date of complete payment of ordered items.
- 24. Exemption from security Deposit:** - The following tenderer s are exempted from the payment of Security Deposit
- I. If the Tenderer has produced a certificate from the Director of Supplies & Disposal, Bombay to affect that they are exempted from payment of Security Deposit.
1. The Security Deposit is liable to be forfeited in the event of non-fulfilment of terms and conditions by the tenderer.

Supplying, Erecting, Testing, commissioning of Multi Circuit Range SF6 insulated vacuum Ring main Unit for EMC Section

a) If any stores, equipment/all equipments or any parts of equipment Is/are damaged in transit, and not replaced by supplier within stipulated period as notified by institute. We will recover the damages and applicable expenditure will be deducted from balance payment of supplier or from Security Deposit; or Security Deposit will be forfeited.

25. All the replacement of stores/equipments shall also be guaranteed for a period of 12 month from the date of installation and demonstration.

26. If any short supply is found at the time of verification/inspection of material/checking of material on its receipt, the supplier will have to supply the material within 15 days. Non-compliance of the order will compel institute to recover the cost from balance payment.

27. Repeat order:- If necessary/any equipment/stores is required in additional number, the repeat order will be placed on previous purchase order. The supplier should have to supply the equipment/s, stores as per the previous rates.

28. Training: - If we required training facility to our representative/staffs the supplier should have to provide training facility on free of cost.

29. The origin of stores offered whether Indian or foreign and in the case of the former State in which it is manufactured should be clearly stated against each article/equipment.

30. IMPORTED EQUIPMENTS: -

a) If any tenderer is going to quote the imported equipments, he should quote the rates in Indian currency (Rupees), and he should note that, if the item finalised to purchase they should supply at our door delivery and payment will be made in Rupees only.

b) If such equipments are in foreign currency and agent/or manufacturer/dealer has quoted the equipments. The Tenderer should have to quote the rates, all charges, Freight, Insurance clearly. F.O.R. VISHNUPURI site; If finalised to purchase the imported equipments, he should do the all Import formalities; and must be followed all other conditions of Tender Notice/documents and purchase orders; and the tenderer has to supply at our site.

31. **Rate Contract:** - If the item/s is/are covered under DGS&D Rate contract, the tenderer should quote DGS&D Rate contract number, furnish the copy of the Rate contract and other relevant particulars.

32. **Disputes:** - If any disputes or differences, questions what so ever arises the same subject to Nanded Jurisdiction.

**Sd/-
DIRECTOR
S.G.G.S.I.E. & T., Nanded**

Encl. Tender schedule

SHRI GURU GOBIND SINGHJI
INSTITUTE OF ENGINEERING & TECHNOLOGY,
VISHNUPURI, NANDED. 431 606

e-TENDER SCHEDULE

File No. SGGsIE&T/Stores-2540/SF6 gas insulated vacuum ring main unit/EMC/2017-18

Date: 27/10/2017

Dept.: EMC Section.

File No. Stores-2540/SF6 gas insulated vacuum ring main unit/EMC/2017-18

Name of the Head of Stores: Equipments/Non – Recurring [Dead Stock]/ Recurring

Note: Please read carefully all instructions, required specifications, Terms & conditions before quoting the rates.

Item. No.	Name of the Equipment & Technical Specification of the equipment	Req. Qty.	Rate	Unit	If any Taxes / Charges please mention here	Total Amount	Remark/ Make
Item No.1	Dismantling existing DO / AB switch set complete from D.P. structure in an approved manner.	Rate should be quoted for 1 nos. but approx. quantity is 03 Nos					
Item No.2	Dismantling existing lightning arrestor set, insulator complete from DP structure in an approved manner	Rate should be quoted for 1 nos. but approx. quantity is 06 Nos					
Item No.3	Dismantling existing 4-pole structure from its base and earthing connected to it in and approved manner	01 No					
Item No.4	Supply, Installation, Testing and commissioning of UL Certified / CPRI Tested Maintenance Free Earthing comprising of Electrode of 17.2 mm diameter Low Carbon Steel with 250 micron Molecular Copper Bonded Earthing Rod of Length 3m along with 25 kg Carbon Based environment friendly back fill Ground Enhancing compound required to fill up the excavated earth with required quantity as per specification no EA-MOBI	Rate should be quoted for 1 nos. but approx. quantity is 04 Nos					
Item No.5	Supplying and erecting Distribution class, 11 kV thyrite type lightening arrester, on provided cross arm as per specification No. OH-INS/LA	Rate should be quoted for 1 nos. but approx. quantity is 06 Nos					
Item No.6	Providing and erecting Heat shrinkable indoor termination kit for 11 kV (E) XLPE HT cable 3x240 to 400sq. mm. with necessary material as per specification No. CB-JT/HT	Rate should be quoted for 1 nos. but approx. quantity is 04 Nos					
Item No.7	Supplying, Erecting, testing, commissioning of 11 KV SF 6 insulated four way ring main unit consisting of four vacuum circuit breaker, extensible with PT / metering enclose with alarms and multifunction reading meter	01 No					

Product General Technical Data for Ring main Unit

Type	Outdoor
Rated Voltage	12kV
Operating Voltage	11kV

Supplying, Erecting, Testing, commissioning of Multi Circuit Range SF6 insulated vacuum Ring main Unit for EMC Section

Rated Lighting withstand voltage	75kVp
Rated power frequency withstand voltage	28kV for 1 min
Rated frequency	50hz
Rated peak current	52.5kAp
Rated short time current for 3 Sec	21kA
Rated Current of Ring Switch& Breaker	630Amps for Isolator & 630Amp for Breaker
Filling Pressure	0.4 Bar
Manual/Motorised	Motorised-24V DC
Extensible/Non Extensible	Extensible
Relay	1 E/F protections with Display & Self Power Supply.
Rated current of Bus Bars Material of Bus bars	630Amp EC Grade Copper
Cable Size	Up to 3x 300sq.mm
Degree of Protection	
Main Tank	IP67
Front Cover	IP2X
Cable Cover	IP3X
Outer Enclosure	IP54
IEC Standards	60298,60129,60056,60694,60185,60186,60265,376605 29

Technical Highlights of RMU:

- SF6 Gas filled Ring Main Units with Circuit Breaker
- Isolator with SF6 insulated load- breaking fault making isolator switch with cable box.
- SF6 Circuit Breaker complete with operating mechanism, protection system and one number of cable box.
- Isolators, breaker, Copper Busbars are inside a robotically welded steel tank sealed for life. Stainless steel tank is made up of 3 mm steel Thickness.

General Finish: Totally enclosed, metal clad, vermin and dust proof suitable for tropical climate use as detailed in the specification.

Ratings: The busbars have continuous rating of 630 Amps at 50 degree ambient temperature without de-rating. The isolator/ LBS with continuous rating of 630 Amps; Circuit Breaker also with continuous rating of 630 Amps, in accordance with relevant IEC standard

Breaking & Making Capacity: The isolators are capable for breaking rated full load current. Circuit Breaker is capable of having rupturing capacity of 21kA symmetrical at 11KV.

Busbars: Switchgear is complete with all connections, busbars etc. The continuous rating of copper busbars shall be 630 Amps and they are fully encapsulated by SF6 gas inside the robotically welded 3 mm. steel tank. The SF6 RMU shall be sealed for life; the 3 mm steel tank / enclosure meet the “sealed pressure system” criteria in accordance with IEC: 298. There is no requirement to ‘top up’ the SF6 gas. It provides full insulation, making the switchgear insensitive to the environment. Thus assembled, the active parts of the switchgear unit are maintenance free.

The RMU are designed so that the position of different devices is visible to the operator on the front of the switchboard & operations are visible as well.

Cable Box: Every isolator shall be provided with suitable and identical cable boxes for connecting 3 Core, 11kV cable from vertically below. The cable boxes are be so located at convenient height to facilitate easy cable jointing work.

The offered 11KV RMU consists of 630A three positions, three pole circuit breaker, with integral fault making / earth switch. The functions are naturally interlocked to prevent the main & earth switch from being switched ‘ON’ at the same time & the CB not allowed to trip in ‘Earth On’ position. The selection of the main/earth switch lever on the panel, which is allowed to move only if the main or earth switches in the off position. The levers are made available to pad locked in either the main or earth position.

(B) BILL OF MATERIAL for single RING SWITCH and BREAKER:

a 11kV RMU (Extensible)

CIRCUIT BREAKER / VCB

1- 630 Amps, Triple pole, **Vacuum Circuit Breaker**, with independent **motor** charged spring mechanism and fully rated earth switch, with provision for earth of the cable. Earthing of the outgoing cable is achieved by the use of CB in series with the off- load disconnecter /selector switch. This enhances the making capacity of the earth switch.

1- Air insulated cable box with gland plate suitable for bottom entry of single run of 3-core cable up to 300sq. mm

1- Over current & Earth Fault Relay with digital display & Self Powered 1- Set of current transformers for protection circuit mounted on Cable bushings / cable box of ratio 100-50/1A, 5P10, 2.5VA

1- Set of 3 Nos. Metering CT of 100-50/1A, Class 0.5, 2.5VA 1-

Capacitive Voltage Indicators –LED Display

1- Mimic diagram on front panel, complete with status indicators (ON-OFF-EARTH) 1-

Actuator Kit for motorized operation.

1- Epoxy Modules low energy Tripping Coil for tripping the circuit breaker in fault condition 1-

Local 'PULL TO TRIP' mechanism for emergency trip

1- Set of Potential Free contacts for SCADA Compatibility. 1- Set of Right Angle Boots-NON TOUCH PROOF

b) GENERAL

The combined unit shall consist of the following:

1- Set of 630 Amps continuously rated COPPER bus bars

1- Set of positive standard mechanical interlocks to avoid unsafe operation

1- Provision for padlocking for Open, Close, Earth position in correct sequence 1-

Manometer for indicating SF6 gas pressure with green & red zone

1- Set of hooks strong enough to take the load of entire unit while lifting by means of crane

1- SF6 tank of 3mm stainless steel, robotically welded construction (having degree of protection IP67)

1- External stud for earthing connections

1- SF6 gas recharging facility

1- Outer Enclosure (cladding) constructed with Galvanize sheets (having degree of protection IP54) 1- Set of

Extensible bushings future extension with metallic end cap cover

1- Pressure Switch wired up to the marshaling box for remote monitoring through SCADA 1- Battery & Charger

Jointing Box – As per requirement

c) PAINT SHADE

The unit shall be painted in RAL7032 paint shade

d) PT PANEL

1- Set (3nos) Bus Connected PTs of $11000/\sqrt{3}/110/\sqrt{3}$, Class 0.5, 50VA

e) MULTIFUNCTION METER.

3-Set of multifunction meter for individual phase current reading

f)ALARM SYSTEM.

Each breaker relays should have individual alarm system

Design Criteria for SF6 RMU

This specification covers Design, Engineering, Manufacture, Assembly, Stage testing, Inspection, Testing before supply, packing and transportation to site of 11 kV MCR type Ring Main Units, motor operated extensible type (Outdoor) comprising 4 numbers Vacuum Circuit breaker for Distribution Transformer protection. The RMU to be supplied against this specification are required for vital installations where continuity of service is very important. The design, materials and manufacture of the equipment shall, therefore, be of the highest order to ensure continuous and trouble-free service over the years.

The RMU offered shall be compact, maintenance free, easy to install reliable, safe and easy to operate and complete with all parts necessary for their effective and trouble-free operation. Such parts will be deemed to be within the scope of the supply irrespective of whether they are specifically indicated in the commercial order or not.

It is not the intent to specify herein complete details of design and construction. The offered equipment shall conform to the relevant standards and be of high quality, sturdy, robust and of good design and workmanship complete in all respects and capable to perform continuous and satisfactory operations in the actual service conditions at site and shall have sufficiently long life in service as per statutory requirements. In actual practice, notwithstanding any anomalies, discrepancies, omissions, incompleteness, etc. in these specifications, the design and constructional aspects, including materials and dimensions, will be

subject to good engineering practice in conformity with the required quality of the product, and to such tolerances, allowances and requirements for clearances etc. as are necessary by virtue of various stipulations in that respect in the relevant Indian Standards, IEC standards, I.E. Rules, Electricity Act-2003 and other statutory provisions.

The Tenderer/supplier shall bind himself to abide by these considerations to the entire satisfaction of the purchaser and will be required to adjust such details at no extra cost to the purchaser over and above the tendered rates and prices.

Tolerances on all the dimensions shall be in accordance with provisions made in the relevant Indian/IEC standards amended up to date and in this specifications. Otherwise the same will be governed by good engineering practice in conformity with required quality of the product.

The tenderer shall submit a list and unit rates of all the special tools, equipment and instruments required for erection, testing, commissioning and maintenance of the equipment. The purchaser shall decide the quantity of tools to be ordered. Prices of these tools shall not be considered for tender evaluation. However, the list of necessary tools/equipment which will be supplied free of cost with each Ring Main Unit may be furnished separately.

SERVICE CONDITIONS:

a. System particulars:

- b. Nominal system voltage ... 11 kV
- c. Corresponding highest system voltage ... 12 kV
- d. Frequency ... 50 Hz \pm 3%
- e. Number of phases ... 3
- f. Neutral earthing ... Solidly grounded
- g. Fault level (minimum) ... 21 kA for 3 sec for 11kV
- h. Equipment supplied against the specification shall be suitable for satisfactory Operation under the following tropical conditions:-

- a) Max. Ambient air temperature: 50 Deg. C
- b) Max. Relative humidity: 100 %
- c) Max. Annual rainfall: 900 mm
- d) Max. Wind pressure: 150 kg/sq.m
- e) Max. Altitude above mean sea level: less than 1000 mtrs.
- f) Climatic Condition: Moderately hot and humid tropical climate conducive to rust and fungus growth.
- g) Reference Ambient Temperature for temperature rise 50 deg C

Note: The climatic conditions are prone to wide variations in ambient conditions and hence the equipment shall be of suitable design to work satisfactorily under these conditions.

APPLICABLE STANDARDS

The RMU Switchgear shall comply with the requirements stated in the following standards and specifications amended up to date : The 11KV both side extensible, switchgear shall be installed at an Outdoor location displayed in the sketch enclosed to this tender, & adjacent to the distribution transformer center along the underground 11KV feeder system. The Vacuum circuit breaker shall be utilized to control and isolate the 11KV/433V distribution transformer/HT consumers/ 11KV spur connection connected through 11KV grade underground cable at distribution Centre

Indoor RMU installed in enclosure (canopy) is not acceptable. RMU should be Outdoor type.

The switchgear and component thereof shall be capable of withstanding the mechanical and thermal stresses of short circuit listed in ratings and requirements clause without any damage or deterioration of the materials.

For continuous operation at specified ratings temperature rise of the various switchgear components shall be limited to permissible values stipulated in the relevant standard.

The equipment offered shall be suitable for continuous satisfactory operation as per site condition.

For

This purpose the design shall be such that it shall be able to withstand the /humid/moist climatic conditions. Climatic data shall be taken into consideration whilst designing.

The equipment shall be totally enclosed, metal clad, vermin & dust proof suitable for tropical climate. The body of the cubicle should be of metal & rust free.

Each bus bar compartment should have a barrier with 1.6mm thick electro galvanized coated/painted with fire resistant paint. The degree of protection for the panel shall be IP 54 for VCB & IP 55 for LBS.

The panel shall be naturally convection-cooled & shall allow continuous full load operation, maintaining the temperatures within tolerance level of components.

Specific Requirement:

The cubicle shall be compact, totally enclosed in a self-contained self-supporting compartment, mounted on base frame or channels. The assembly shall be equipped with common power bus bar, load break switches, and Vacuum circuit breaker as specified here below. All medium voltage parts should be totally enclosed.

The Bus bar material shall be of copper. The bus bar shall be epoxy insulated high purity electrolyte grade copper E-Cu 57 conforming to latest IS standard of 120% rating of switchgears. Electrical conductivity shall be 100% as per IAC standard. Conforming to DIN 1759, DIN 40 500 & relevant bus bar IS standard. The cross sectional area of the copper bus bar & jointing accessories shall be suitably designed. Bus bar shall be supported on bus insulators made of non-hygroscopic, non-inflammable material with tracking index equal or more than that defined in BIS. The main bus bars shall have uniform current ratings throughout their length. Both horizontal & vertical bus, bus joints, & supports shall be capable of withstanding dynamic & thermal stress of the short circuit currents for 3 seconds. Only high tensile strength bolts, nut & washers shall be used in line with IS: 13497. The hot spot temperature of busbars including joints at design ambient temperature shall not exceed 95°C for normal operating conditions. All busbars shall be insulated with shrinkable PVC sleeves of suitable voltage grade for each phase bus bars. Minimum clearance between live parts, between live parts to earth shall be as per applicable for individual standard of components. Interconnections between the main bus bars & individual units shall be made by using vertical copper bus bars of adequate rating. These interconnections of the vertical bus shall be in separate compartment & fully shrouded.

All operations shall be from front of the equipment via spring assisted mechanism.

The requirement of 11KV, 350 MVA SF6 insulated Ring Main Unit is as under:

Both Side Extensible ring main unit suitable for Outdoor installation shall consist of the following:

Vacuum Circuit breaker with the rating 11KV 630 amps for transformer protection shall be enclosed in the robotically welded stainless steel tank of 3mm. Vacuum as arc quenching medium as both insulating and arc quenching medium. SF6 breaker or breaker with epoxy tank is not acceptable. The stainless steel tanks less than 3 mm are not acceptable.

The total breaking time for transient fault should not exceed 40-60 MS (CB + Relay+ trip coil). The main tank (Inner enclosure of Circuit Breaker assembly) and all Switchboard assembly shall be housed in a single compact metal clad suitable for outdoor applications. The design of enclosure for Switchgear, RMU & Switchboard housing shall be in accordance with IEC 298. The switchgear and switchboard shall be designed such that the position of the different devices shall be visible to the operator on the front of switchboard and easy to operate and prevent access to all live parts during operation without the use of tools. There shall be no access to exposed conductors. An absorption material such as activated alumina in the tank shall be provided to absorb the moisture from the SF6 gas to regenerate the SF6 gas following arc interruption. A temperature compensating gas pressure indicator offering a simple indication shall constantly monitor the SF6 insulating medium.

It shall have arrangement for terminating up to 300 mm², 11 KV 3-core XLPE incoming and outgoing Feeder cables.

Sulphur Hexa Fluoride Gas (SF6 GAS):

The SF6 gas shall comply with IEC 376,376A and 376B and shall be suitable in all respects for use in RMUs under the stipulated service conditions. The SF6 shall be tested for purity, dew point air hydrolysable fluorides and water content as per IEC 376,376A and 376B and test certificate shall be furnished to the owner indicating all the tests as per IEC 376 for each Lot of SF6 Gas.

Enclosure:-

The RMU enclosure (Outer) shall be made up of galvanized/galvalitite of 2mm thickness. The rating of enclosure shall be suitable for operation on three phase, three/four wire, 11 KV, 50 cycles, A.C. System with short-time current rating of 21KA for 3 seconds for 11kV with Panels. The complete RMU enclosure shall be of degree of protection IP 54 (Main Door open) and IP 41 (Main Door open). The enclosure shall provide full insulation, making the Switchgear insensitive to the environment like temporary flooding, high humidity etc. The active parts of the Switchgear shall be maintenance-free and the unit shall be minimum -maintenance. The complete RMU unit shall be powder coated with RAL 7032. Each switchboard shall be identified by an appropriately sized label which clearly indicates the functional units and their electrical characteristics. The Switchgear and Switchboards shall be designed such that the position of the different devices is visible to the operator on the front of the Switchboard and operations are visible. In accordance with the standards in effect, the switchboards shall be designed so as to prevent access to all live parts during operation without the use of tools. The RMU metal parts shall be made of high thickness high tensile steel which must be grit/short blasted, thermally sprayed with Zinc alloy (not for galvanized) , phosphate and subsequently painted with Polyurethane based powder paint, the overall (including outer and inner paint layer), the thickness of paint layer shall be not less than 90 microns.

Indoor RMU installed in enclosure is not acceptable. RMU should be Outdoor type.

Inner enclosure (Main tank)

The tank shall be robotically welded stainless steel sheet of minimum of 3mm thickness. The tank shall be sealed and no handling of gas is required throughout the 25 years of service life. However, the SF6 gas pressure inside the tank shall be constantly monitored by a temperature compensating gas pressure indicator offering a simple go, no-go indication. The gas pressure indicator shall be provided with green pressure and red pressure zones. There shall be one Non – return valve to fill up the gas. The manufacturer shall give guarantee for maximum leakage rate of SF6 gas will be lower than 0.1 % / year. An absorption material such as activated alumina in the tank shall be provided to absorb the moisture from the SF6 gas to regenerate the SF6 gas following arc interruption. The degree of protection of the inner enclosure shall be IP 67. The temperature rise test shall be carried out on complete RMU unit and test reports shall be submitted with the offer. The compact RMU Unit shall be provided with a pedestal made up of M.S. Angle to mount the unit on plain surface.

SF6 breaker or breakers with epoxy tank are not acceptable. The stainless steel tanks less than 3 mm are not acceptable.

BUSBARS:

The three nos. of continuous Busbars made up of EC grade tinned copper of rating current 630A shall be provided. The Short time rating current shall be 20 kA for 3 seconds for 11 kV. The Busbar connections shall Anti- oxide greased.

EARTHING AND DISTRIBUTION TRANSFORMER BREAKERS (EARTH SWITCH).

The unit shall consist of a 630 Amp Tee Off spring assisted three position rotating arc type SF6 circuit breaker unit, with integral fault making/dead breaking earth switch, the function shall be naturally interlocked to prevent the main and earth switch from being switched `ON` at the same time and the CB not allowed to trip in `Earth On` position. The selection of the main/earth switch lever on the fascia, which is allowed to move only if the main or earth switches in the off position. The lever may be padlocked in either the main or earth position.

The cables shall be earthed by an integral earthing switch with short-circuit making capacity, in compliance with IEC 129 standard. The earthing switch shall be operable through the main circuit mechanism and manual closing shall be driven by a fast-acting mechanism, independent of operator action.

VACUUM CIRCUIT BREAKER (vacuum as arc quenching medium as both insulating and arc quenching medium.)

The 3 pole 12KV, 630 amps, Vacuum circuit breaker for the protection of Distribution transformers shall be enclosed in the main tank. The rated breaking and making current at rated voltage shall be as follows:

For 11kV system: Rated breaking capacity shall be 21 kA for 3 second.

Rated making current shall be 52.5 kA for 3 second

The manual operation of the circuit breaker shall not have an effect on the spring charging mechanism.

The Vacuum circuit breaker shall be fitted with a mechanical flag, which shall operate in the event of fault occurrences. The breaker indications ON and OFF positions shall be indicated by suitable flag. For ON position indication by Red flag and OFF position indication by Green flag shall be provided.

The Vacuum circuit breaker shall be operated by the same unidirectional handle or switch. The rated operating sequence shall be O-3min-CO-3 min- CO.

The R.M.U shall be provided with suitable protection for the Vacuum circuit breaker:

The Vacuum circuit breaker unit shall be fitted with 3 no's protection CT's (tape wound) of ratio 100-50A/1 A, 5P10 class and 3 no's metering CT's (tape wound) of ratio 100-50A/1 A, 2.5VA, 0.5Class having low burden and trip coil and auxiliary switch assembly allowing the use of self-powered communicable non directional IDMT (Inverse Definite Minimum Time) Over Current and Earth Fault Relays (Microprocessor based). One Three Element Relay having two O/C elements and one E/F element shall be provided for this purpose. All these relays shall be of 3 seconds IDMT characteristics, the O/C elements current setting variable from 10% to 200% of CT secondary ratings, and the E/F elements having current setting variable from 10% to 40%. In addition HV combination fuses of suitable rating shall be provided. The protection curves and all other settings shall be adjustable from touch panel.

System:

The system network is 11,000 volts, 3 phase 3 wire 50 cycles with neutral solidly grounded with earth fault protection. The voltage and frequency are subject to variation as per statutory limits governed by Indian electricity Rules, 1956 with latest amendments in force.

Situation:

The switch gears are intended to be erected outdoors. Indoor RMU installed in enclosure is not acceptable. RMU should be Outdoor type.

General finish:

The equipment should be totally enclosed, free standing, metal clad, vermin and dust proof suitable for tropical climate use as detailed in Section 3. The body of the RMU unit should be of stainless steel/metalized earthed screen cast resin housing and should be rust free & of thickness not less than 2mm. The supporting structures shall

Be made of hot dipped galvanized steel.

Painting:

The surface of all metallic parts shall be thoroughly cleaned, scrapped and degreased preferably by shot blasting or any other treatment, phosphate and painted as per the general technical requirement.

Rating:

The busbars shall have continuous rating of 630 amps. The Vacuum circuit breaker shall have a continuous rating of 630 amps. De-rating of Breaker is not acceptable . All connections including band joints for busbars etc. shall be of ample cross section to cater the rated load current continuously and shall be suitable for short time rating of 21 KA for 3 seconds.

Breaking and making capacity:

The vacuum circuit breaker shall be having rupturing capacity of 350 MVA symmetrical at 11000 volts three phase. Symmetrical breaking capacity shall be 21 KA and the making capacity of 52.5KA at 11,000 volts and shall be as per relevant standard. The asymmetrical breaking capacity, DC component etc.

shall be as per the relevant standards and shall be indicated by bidder in the offer.

Type of Equipment's:

The equipment shall be compact, totally enclosed as self-contained self-supporting, gas tight compartment, mounted on base frame or channels. The assembly shall be equipped with common power busbars, load break switches and vacuum circuit breaker as specified. All medium voltage parts should be totally enclosed in an SF6 environment.

Bus bars: The bus bars shall be SF6 insulated type. Necessary diagram along with all the dimension shall be submitted along with Bid.

- b) The operating handle shall have three positions "ON", "OFF", and "EARTH" which shall be clearly marked with suitable arrangement to padlock in any position.

(a) BUSHINGS

All the bushings shall be of same height, parallel, on the equal distances from the ground and protected by a cable cover.

CABLE BOXES

All cable boxes shall be air insulated suitable for dry type cable terminations. The cable boxes at each of circuit breaker cable suitable up to 3C x 300 sq.mm. Necessary Right angle Boot should be supplied to the cable terminations. The cable box shall be arc resistant as per IEC 62271-200 amended up to date. The internal arc fault test on cable box shall be carried out for 11 kV system for 20 kA for 1 second. The clearance between phase to phase and phase to earth shall be as per IEC 61243 – 5 amended upto date. The cable termination and gland arrangements shall be appropriate for the type and style of cables used at the time.

VOLTAGE INDICATOR LAMPS AND PHASE COMPARATORS of drawings/manuals will be considered as the date of supply of equipment for the purpose of computing penalties for late delivery.

1. GUARANTEED TECHNICAL PARTICULARS

The bidder submit the 'Guaranteed Technical Particulars'.

All tests results shall be furnished by the contractor at the time of supply. It shall be the discretion of the Engineer-in-charge to direct the contractor to conduct tests before commissioning of the RMU, if not fully satisfied who shall conduct the tests at his own cost. The contractor shall furnish certified reports of all the tests carried out at the works 3 copies for approval of the Engineer-in-charge along with the relevant outline sketches of the cubicle.

The bidder should get approval for the various drawings of the RMU unit including the protection scheme. The agency shall furnish three sets of operation & maintenance instruction manual, three sets of service

manual with detailed power & control wiring diagram, circuit diagram, three sets of original spare parts catalogue with part numbers, list of recommended spares, three sets of original handing over document & as-

build drawings in AutoCAD with soft copy in CDs. The bidder shall arrange free of cost training at site for operating & maintenance personnel with proper documentation.

BUS BAR/ FUSE BASES, NUTS & BOLTS ETC.

The indication as per IEC 601958 to indicate whether or not there is voltage on the cables.

It shall be possible for each of the functions on the RMU to be equipped with a voltage indication, to indicate whether or not there is voltage on the cables. The capacitive dividers will supply low voltage power to sockets at the front of the unit, an external lamp must be used to indicate live cables.

Three outlets can be used to check the synchronization of phases with the use of an external device.

WIRING & TERMINALS:

The wiring should be of high standard and should be able to withstand the tropical weather conditions. All the wiring and terminals (including take off terminals wiring for future automation, DC, Control wiring), Spare terminals shall be provided by the contractor. The wiring cable must be standard single-core multi stranded, non-sheathed, Core marking (ferrules), stripped with non-notching tools and fitted with end sleeves, marked in accordance with the circuit diagram with printed adhesive marking strips. All wiring shall be provided with single core multistrand copper conductor wires with P.V.C insulation and shall be flame retardant low smoke type.

The wiring shall be carried out using multi-strand copper conductor super flexible PVC insulated wires of 1.1 KV Grade for AC Power, DC Control and CT circuits. Suitable coloured wires shall be used for phase identification and interlocking type ferrules shall be provided at both ends of the wires for wire identification. Terminal should be suitably protected to eliminate sulphating. Connections and terminal should be able to withstand vibrations. The terminal blocks should be stud type for controls and disconnecting link type terminals for CT leads with suitable spring washer and lock nuts.

Flexible wires shall be used for wiring of devices on moving parts such as swinging Panels (Switch Gear) or panel doors. Panel wiring shall be securely supported, neatly arranged readily accessible and connected to equipment terminals, terminal blocks and wiring gutters. The cables shall be uniformly bunched and tied by means of PVC belts and carried in a PVC carrying trough.

The position of PVC carrying trough and wires should not give any hindrance for fixing or removing relay casing, switches etc., Wire termination shall be made with solder less crimping type of tinned copper lugs. Core identification plastic ferrules marked to correspond with panel wiring diagram shall be fitted with both ends of each wire. Ferrules shall fit tightly on the wire when disconnected. The wire number shown on the wiring shall be in accordance with the IS.375.

All wires directly connected to trip circuits of breaker or devices shall be distinguished by addition of a red colour unlettered ferrule.

Inter-connections if any to adjacent Panels (Switch Gear) shall be brought out to a separate set of Terminal blocks located near the slots or holes to be provided at the top portion of the panel. Arrangements shall be made for easy connections to adjacent Panels (Switch Gear) at site and wires for this purpose shall be provided and bunched inside the panel. The bus wire shall run at the top of the panel. Terminal block with isolating links should be provided for bus wire. At least 10% of total terminals shall be provided as

spare for further connections. Wiring shall be done for all the contacts available in the relay and other equipment and brought out to the terminal blocks for spare contacts. Colour code for wiring is preferable in the following colours.

Voltage supply Red, Yellow, Blue for phases , Black for Neutral

CT circuits similar to the above

250V AC circuits Black for both phases and neutral

Earthing Green

The wiring shall be in accordance to the wiring diagram for proper functioning of the connected equipment. Terminal blocks shall not be less than 650V grade and shall be piece-moulded type with insulation barriers. The terminal shall hold the wires in the tight position by bolts and nuts with lock washers. The terminal blocks shall be arranged in vertical formation at an inclined angle with sufficient space between terminal blocks for easy wiring. The terminals are to be marked with the terminal number in accordance with the circuit diagram and terminal diagram. The terminals should not have any function designation and are of the tension spring and plug-in type.

EARTHING

The RMU outdoor metal clad, Switch Gear, Load break isolators, Distribution Transformer, R.S.Joists, M.S. Channels / M.S. Angles etc, shall be equipped with an earth bus securely fixed along the base of the RMU.

When several units of the RMU (Extra Isolators / Breakers) are mounted adjoining to each other, the earth bus shall be made continuous and necessary connectors and clamps for this purpose shall be included in the scope of supply. The size of earth busbar of tinned copper flat shall be as per IEC/IS standards and shall be fixed inside the RMU. Provision shall be made on end of RMU for connecting the earth bus to the earth grid by erecting suitable 2 earth pipes of 40mm diameter MS rod of 3 meters in pits. Both the earth pipes are also to be connected in a grid formation. Necessary terminal clamps and connectors shall be included in the scope of supply.

Complete Ring Main Unit shall be capable of withstanding this current without any damage being caused, in accordance with the recommendations IEC 694 and IEC 298.

TROPICALISATION:

Due regard should be given to the climatic conditions under which the equipment is to work. Ambient temperature normally varies between 25 C and 40 C, although direct sun temperature may reach 45 C. The climate is very humid and rapid variations occur, relative humidity between 90% and 100% being frequently recorded, but these values generally correspond to the lower ambient temperatures. The equipment should also be designed to prevent ingress of vermin, accidental contact with live parts and to minimize the ingress of dust and dirt. The use of materials, which may be liable to attack by termites and other insects, should be avoided.

METERING:

Separate Metering Module consisting of bus connected PTs And metering CTs to be provided for VCB function along with Provision of installing Multifunction meter to be provided. The PTs and CTs provided shall made up of epoxy cast resin with an Accuracy class of 0.5. The CT ratio shall be as per transformer Rating. The metering is required only in breaker functions.

MOTORISATION:

All the functions within the RMU i.e Isolators / Breakers should be fitted with motor mechanism and closing coil making it suitable to make it ON from remote. Motor should be fixed on Facia. So that it can be assessable from front without removing facia.

Safety of people

Any accidental overpressure inside the sealed chamber will be limited by the opening of a pressure limiting device in the enclosure. Gas will be released to the rear of the unit away from the operator. Manufacturer shall provide type test report to prove compliance with IEC 298 appendix AA 'Internal fault'.

Operating lever

An anti-reflex mechanism on the operating lever shall prevent any attempts to re-open immediately after closing of the switch or earthing switch. All manual operations will be carried out on the front of the switchboard. The effort exerted on the lever by the operator should not be more than 250 N for the switch and circuit breaker. The overall dimensions of the RMU shall not be increased due to the use of the operating handle. The operating handle should have two workable positions 180° apart.

Front plate

The front shall include a clear mimic diagram which indicates different functions.

The position indicators shall give a true reflection of the position of the main contacts. They shall be clearly visible to the operator.

The lever operating direction shall be clearly indicated in the mimic diagram.

The manufacturer's plate shall include the switchboard's main electrical characteristics.

Danger Board:

The danger Board plate as per relevant IS shall be riveted on the front plate of the RMU.

TYPE and ROUTINE TESTS:

Type tests:

The equipment offered in the tender should have been successfully type tested at NABL laboratories in India or equivalent international laboratories in line with the relevant standard and technical specification, within the last 5 (five) years from the date of offer. The bidder shall be required to submit complete set of the type test reports along with the offer. In case these type tests are conducted earlier than five years, all the type tests as per the relevant standard shall be carried out by the successful bidder at NABL in presence of purchaser's representative free of cost before commencement of supply. The undertaking to this effect should be furnished along with the offer without which the offer shall be liable for rejection.

The list of type tests is as follows:

Short time current withstand test and peak current withstand test.

Lightening Impulse voltage with-stand test

Temperature rise test.

Short Circuit current making and breaking tests.

Power frequency voltage withstand test (dry).

Capacitive current switching test confirming to IEC.

Mechanical operation test.

Measurement of the resistance of the main circuit.

Degree of protection of main tank and outer enclosure

Switch, circuit breaker, earthing switch making capacity.

Switch, circuit breaker breaking capacity.

Internal arc withstand.

Checking of partial discharge on complete unit.

The details of type test certificate according to the composition of the Switchboard shall be submitted with the offer. In addition, for switches, test reports on rated breaking and making capacity shall be supplied. For earthing switches, test reports on making capacity, short-time withstand current and peak short-circuit current shall be supplied.

INSPECTION:

The inspection may be carried out by the purchaser at any stage of manufacture. The successful tenderer shall grant free access to the purchaser's representative/s at a reasonable notice when the work is in progress. Inspection and acceptance of any equipment under this specification by the purchaser, shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective. The supplier shall keep the purchaser informed, in advance, about the manufacturing programme so that arrangement can be made for stage inspection.

The purchaser reserves the right to insist for witnessing the acceptance/routine testing of the bought out items. The supplier shall keep the purchaser informed, in advance, about such testing programme.

MANUFACTURING FACILITIES:

As RMU are having sealed pressure system in compliance with IEC 298, manufacturer shall have complete facility with state of the art equipment's for ensuring the quality of product delivered strictly adhering to IEC 298 GUIDELINES. Following are the work station at manufacturer place to ensure the adherence: -

1. Robotic welding station for stainless steel main tank ensuring the leak rate less than 0.1% per annum
2. Work stations with adjustable work benches and torque wrenches, giving flexibility to workmen for proper tightness of internal components of sealed tank.
3. State of the Gas leak testing system ensuring the quality of sealing and have precision to measure leak rate less than 0.1% per annum.
4. High voltage testing station to have high voltage power frequency test and partial discharge measurement.

The supplier shall submit the routine test certificates of bought out items and raw material, at the time of routine testing of the fully assembled breaker.

DRAWINGS:

All drawings shall conform to relevant IEC Standards Specification. All drawings shall be in ink. The Tenderer shall submit along with his tender dimensional general arrangement drawings of the equipment's, illustrative and descriptive literature in triplicate for various items in the RMUs, which are all essentially required for future automation.

- i) Schematic diagram of the RMU panel
- ii) Instruction manuals
- iii) List of spares and special tools recommended by the supplier.

- iv) Copies of Type Test Certificates as per latest IS/IEC.
- v) Drawings of equipments, relays, control wiring circuit, etc.
- vi) Foundation drawings of RMU.
- vii) Dimensional drawings of each material used for item Vii.
- viii) Actual single line diagram of RMU/RMUs with or without extra combinations shall be made displayed on the front portion of the RMU so as to carry out the operations easily. The following should be supplied to each consignee circle along with the initial supply of the Equipments ordered.

NAME PLATE:

Each RMU and its associated equipments shall be provided with a nameplate of aluminum sheet of 2mm thick, legible and indelibly marked with at least the following information.

- (a) Name of manufacturer
 - (a) Type,
 - (b) serial number
 - (c) Voltage
 - (d) Current
- (f) Frequency
- (g) Symmetrical breaking capacity
- (h) Making capacity
- (i) Short time current and its duration
- (j) Purchase Order number and date
- (k) Month and Year of supply
- (l) Rated lighting impulse withstand voltage

PACKING & FORWARDING:

The equipment shall be packed in crates suitable for vertical/horizontal transport as the case may be and the packing shall be suitable to withstand handling during the transport and outdoor storage during transit. The supplier shall be responsible for any damage to the equipment during transit, due to improper and inadequate packing. The easily damageable materials shall be carefully packed and marked with the appropriate caution symbols. Wherever necessary, proper arrangement for lifting, such as lifting hooks etc. shall be provided. Any material found short inside the packing cases shall be supplied by the supplier without any extra cost.

Each consignment shall be accompanied by a detailed packing list containing the following information:

Name of the consignee.

Details of consignment.

Destination.

Total weight of consignment.

Sign showing upper/lower side of the crate.

Handling and unpacking instructions.

a) Bill of material indicating contents of each package.

All the equipment covered in this specification shall be installed at site at the specified location. The Equipment shall be suitably packed to avoid damages during transit in the case of indigenous supplies.

The tenderer shall quote delivery periods for various equipment and shall stick to the committed delivery. The delivery period will be counted from the date of receipt of letter of award of the contract. It may clearly be noted that the delivery period will under no circumstances be linked up with other formalities like drawing approval, etc. It is therefore, the responsibility of the successful tenderer to submit the drawings, bill of materials, packing lists, etc. in time and get these approved by the Distribution department of the Electricity department.

PERFORMANCE GUARANTEE:

All equipment supplied against this specification shall be guaranteed for a period of 12 months from the date of successful commissioning or 18 months from the date of dispatch of the R.M.U., whichever is earlier. However, any engineering error, omission, wrong provision, etc. which do not have any effect on the time period, shall be attended to as and when observed/pointed out without any price implication.

PROCEDURE/INSTRUCTION OF WORK:

- 1) First of all tenderer should bring ring main unit set and erect it to continue electric supply as per the instruction of college authority.
- 2).After that the tenderer should remove four pole structure completely from its base and earthing connected to it.
- 3)Next, the college authority will make shed for ring main unit.
- 4)After completion of shed the tenderer must shift the Ring main unit in the shed with completely erecting with cables and earthing respectively.
- 5) The tenderer will have to take all the permission from MSEDCL, PWD and other authority regarding installation
- 6) The contractor should have minimum three years of experience in this field.
- 7) Decision made by college authority will be final. Work should be done with supervision of college authority.

- 8) For re-erecting of RMU no extra charges will be paid. Tenderer should note that.
9) Product supplied should be as per given tender specification only. Any changes in specification will not be entertained, liable to reject at any point.
10) Product specification should be specified in details.
11) Drawing should be submitted before work with approved manner.
12) Transportation charges will not be paid.

The right to accept any tender or reject the lowest or any or all tenders without assigning any reason is reserved with the Director.

specification of the items as per above tender schedule of the **e-Tender notice No.SGGSIE&T/Stores-2540/SF6 insulated vacuum Ring main Unit/EMC/2017-18 Date 27/10/2017**

Name of the firm:-

Seal of the firm:

Signature of Tenderer: _____

Quotation no.: _____

Date: _____

Details of Certificate & documents attached [pl. mark as√]

1. Shop Act Registration
2. CGST/SGST Registration No.
3. Format No. 3 & 4 "List of Users, Proforma for performance of bidder" for as per Tender document.
4. Copy of Income Tax returns.
5. Manufacturer's should certify that the items quoted are manufactured by them only.
6. Authorized dealership certificate
7. **EMD is Rs. 32,000=00 need to be paid online and receipt should be uploaded.**

INSTRUCTION TO BIDDERS e-Tendering

(To be printed on the letter head of the firm)

FORMAT3

No.
Date.

LIST OF USER

List of users other than this Department (other than DTE) for verifying the quality of the equipment being supplied and after sales service rendered by the manufacturer.

Name of Item:-

Model No.

Sr, No.	Name and Address of the User	Contract person	Contract no, mobile no and e-mail address of the contract person	Purchase order no with date	Quantity Purchased	Any Complaints/queries court matter etc in this regard?

Signature of Manufacturer/Bidder with a Seal

Supplying, Erecting, Testing, commissioning of Multi Circuit Range SF6 insulated vacuum Ring main Unit for EMC Section

INSTRUCTION TO BIDDERS e-Tendering

FORMAT 4

PROFORMA FOR PERFORMANCE OF BIDDER (To be given by other customers of the bidders) (5 separate such certificates are to be produced.)

Certified that performance of the equipment supplied and after sales service provided by M/s.

_____ for last 3 Years is as given below:-

Sr. No.	Name of Equipment	Supply Order No. & Date for 3 recent Years	Date of Delivery	No. of failures during warranty period (Please Give details)	No. of failures after expiry of warranty period (Please Give details)	After sales service provided by supplier ** Unsatisfactory /Satisfactory/Good	Remark Please attach service reports of the supplier
1	2	3	4	5	6	7	8

Signature of Manufacturer/Bidder with a Seal