



**TRANSMISSION CORPORATION OF TELANGANA STATE LIMITED**

**VIDYUT SOUDHA :: HYDERABAD**

(Website:TSTransco.in. CIN No.U40102TG20148SGC094248)

From  
The Chief Engineer/P&MM,  
TSTransco,  
VidyutSoudha,  
Hyderabad – 500 082  
e-mail: ce.pmm@tstransco.in

To  
M/s. GR Power Switchgear Ltd.,  
Kotamma Bhavan,  
Plot 27/B, IDA, Phase-IV,  
Jeedimetla, Hyderabad – 500 055.  
Tel: 040-23095589

SAP.PO.No.4500003144 /Web PO No.768/CE(P&MM)/SE(P&MM)/DE11/TSPMM11-22/2022/  
D.No. 114/2022,Dt:19 .10.2022.

Sirs,

Sub: Tender Specification No. TSPMM11-22/2022- Supply of 24 Nos. 220kV 800A Isolator metallic without earth switch - Detailed Purchase Order - Issued – Reg.

Ref: 1. Tender Specification No. TSPMM11-22/2022 on e-procurement platform.  
2. LOI No. CE(P&MM)/SE(P&MM)/DE11/TSPMM11-22/2022/  
F:33kV Isolators/D.No.109/22, Dt:11.10.2022  
3. Your LOI confirmation Lr No.GRPS/VO-3958/TSTRANSCO/2022, dt:15.10.2022

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I, acting for and on behalf of and by the order and direction of TRANSMISSION CORPORATION OF TELANGANA LIMITED (herein after called the 'TSTransco), accept your offer against Tender Specification under ref (1) cited, for supply of 24Nos. 220kV 800A Isolator metallics without earth switch detailed in clause (2) below, with the terms and conditions as per the Tender Specification No TSPMM11-22/2022, set out in this order. This Purchase Order is in confirmation of Letter of Intent issued vide ref (2) cited, accepted by you vide ref (3) cited.

**1. SCOPE OF CONTRACT:**

This contract relates to the supply of 24Nos. 220kV 800A Isolator metallics without earth switch detailed in clause (2) below and covers design, manufacture, testing before dispatch and delivery free at destination substations/ stores (FADS) as detailed in this order.

**2. SCHEDULE OF EQUIPMENT & PRICES:**

Supply of the following 3 pole outdoor type Horizontal Double Break Isolators, 3 phase 50 c/s and fault level of 40kA per second, auxiliary equipment, all fittings & accessories, clamps & connectors, bolts & nuts, other essentials including terminal connectors and components/switches/modules/contacts required to be provided with Isolators for interfacing with SCADA, automation system etc., conforming to the latest issue of IS:9921 and as per the Technical Specification.

The price break-up details are as below:

220kV 800A Isolator metallic without earth switch (HSN Code: 85353090)

Sl. No.	Description	Amount in Rs.
1	Ex-Works	2,03,580.00
2	Packing & Forwarding	0.00
3	Freight	3,750.00
4	Insurance	90.00
5	Total Taxable Unit Rate	2,07,420.00
6	SGST @ 9% + CGST @ 9% on (Ex-Works + Freight + Insurance)	37,335.60
7	<b>Unit FADS Price including Taxes</b>	2,44,755.60
8	Quantity (Nos.)	24
9	<b>Total Amount</b>	58,74,134.40
<b>Rupees Fifty Eight Lakhs Seventy Four Thousand One Hundred Thirty Four and Forty Paise only.</b>		

- The prices of equipment accepted are **FIRM** and FOR delivery destination stores/site.
- The price is inclusive of all incidental charges such as Packing, Forwarding, Handling, Loading, Unloading and other incidentals.
- Freight & Insurance will be reimbursed on submission of documentary proofs only.
- The dispatch of equipment is by road only. The transit insurance shall be at least for an amount equal to 100% of the cost of the goods and include storage cover for 45 days at stores/site.
- It is to note that the prices are with the present rate of GST @ 18% (CGST @ 9% + SGST @ 9% ) on the total of Ex- Works, Freight and Insurance.
- The TSTransco shall have the right to vary the ordered quantity by  $\pm 50\%$  at any time during the execution of the order.
- TCS at prevailing rates is applicable on any payment made, if company's aggregate sales consideration during the relevant financial year exceeds Rs.50 Lakhs and total sales, gross receipts or total turnover including GST if any exceeds Rs.10 Crores in the financial year immediately preceding the financial year of subject sales.  
The payment of TCS shall be subject to furnishing of necessary documents. The stipulated conditions are to be verified by the DDOs while processing the bills.  
The PAN No. of TS TRANSCO is AAFCT0166J.
- If any payment is made erroneously, TSTransco reserves the right to recover the same from your future bills/ BGs.

### 3. DELIVERY:

To supply total quantity within three months from the date of Letter of Intent.

#### 4. **PERFORMANCE SECURITY:**

Performance Security shall be furnished in the name of TSTransco for an amount of 10% of the contract value (i.e.) Rs. **5,87,414.00** for proper fulfillment of the contract, which will include the warranty period and completion of performance obligations including Warranty obligations. The Performance security will cover 60 days beyond the date of completion of performance obligations including Warranty obligations.

In the event of any correction of defects or replacement of defective material during the warranty period, the warranty for the corrected/replaced material will be extended to a further period of 12 months and the Performance Bank Guarantee for proportionate value will be extended 60 days over and above the extended warranty period. The proceeds of the performance security will be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

The performance security will be...

- (a) A Bank Guarantee issued by State Bank of India or its associate Banks/Nationalised Banks acceptable to the Purchaser, in the form provided in the bidding documents.
- (b) A banker's cheque or crossed DD or Pay Order payable at the head quarter of the Purchaser in favour of the Pay officer drawn on any scheduled Bank.

It is entirely your responsibility to extend the validity of this Bank Guarantee to cover the period of guarantee well before its expiry.

#### 5. **PAYMENT:**

- a) 100% payment will be arranged through PFC/REC/Banks/TSTRANSCO/Bulk Load funds within 45 days reckoned from the check-measurement date in Form-13.
- b) For payment through Real Time Gross Settlement (RTGS) the details of Bank Account are as below:

i)	Name of the Bank	State Bank of India
ii)	Branch Address	Shapurnagar Branch, APIIC Colony, Opp Sub station IDA, Jeedimetla, Hyderabad- 500 055
iii)	Branch Code	20400
iv)	City	Hyderabad
v)	Account No.	40798962392
vi)	MICR Code	500002356
vii)	IFSC Code	SBIN0020400

- c) The 100% payment mentioned above is subject to submission of performance security by the supplier as per clause (4) above.
- d) The supplier should invariably submit acceptance and routine test certificates and other documents the purchaser specifies before the dispatch is made so that they can be checked and approved well in advance.
- e) The performance guarantee to be executed in accordance with this specification will be furnished on a stamp paper of value Rs.100/-. The Bank Guarantee will be extended if required suitably in accordance with the provisions of Performance Security clause of the specification.
- f) If the supplier has received any over payments by oversight or if any amounts are due to the TSTransco due to any other reasons, when it is not possible to recover such amounts under the contract resulting out of this specification, TSTransco reserves the right to collect the same from any other amount due to the supplier and / or Bank Guarantees given by the company due to or with TSTransco.
- g) When the supplier does not at any time, fulfill his obligations in replacing / rectifying etc. the damaged / defective materials in part or whole promptly to the satisfaction of the TSTransco Officers, TSTransco reserves the right not to accept the bills against subsequent dispatches made by the supplier and only the supplier will be responsible for any demurrages, wharfages or damage occurring to the consignments so dispatched.
- h) Any incidental charge such as stamp duty, bank charges etc., shall be to the Supplier's account and any charges in relation there to shall not be included in the bills submitted to TSTransco's Paying Officer through Banks.
- i) All payments will be made in non-convertible Indian Rupees.
- j) The Bank details as above are final and shall not be revoked under any circumstances.

**6. RESPONSIBILITY OF THE SUPPLIER FOR LOSS/DAMAGE:**

- a) The supplier is responsible for the safe delivery of the goods in good condition at the destination. He should acquaint himself of the conditions for handling and transport of the goods to destination and shall include and provide for security and protective packing of the goods so as to avoid damage in transit.

- b) External damages or shortages that are prima facie the results of rough handling in transit or due to defective packing will be intimated within a fortnight of the receipt of the materials. Internal defects, damages or shortages of any internal parts which cannot ordinarily be detected on a superficial visual examination will be intimated subsequently.

In either case, the defective or damaged materials should be replaced by the supplier free of cost to the TSTransco. If no steps are taken within 15 days of receipt of intimation of defects or such other reasonable time as the TSTransco may deem proper to afford, TSTransco may without prejudice to its other rights and remedies cause to be repaired or rectified the defective material or replace the same and recover the expenditure incurred there for from the deposit such as Earnest Money, Security and Performance or other monies available with TSTransco or by resorting to legal action.

- c) For the purpose of any legal constrution, the material shall be deemed to pass into TSTransco's ownership only at the final destination where they are delivered and accepted.

#### **7. PENALTY FOR LATE DELIVERY:**

- a) The delivery period as per agreed delivery schedule shall be deemed to be the essence of the contract. In case of delay in delivery of materials beyond the agreed delivery schedule or to perform the services within the period specified in the contract whatever be the reason the TSTransco may at its option, demand and recover from the supplier from the contract price, as liquidated damages, a sum equivalent to 0.5% per week or part thereof on the value of the undelivered portion subject to a maximum of 5% of total value of contract.
- b) For penalty, the number of days of delay would be rounded off to the nearest week and penalty calculated accordingly.
- c) Equipment which is not of acceptable quality (or) not confirming to specification would be deemed to be not delivered.
- d) The penalty specified will be levied and would be adjusted against subsequent pending bills.
- e) The check measurement date in Form-13 i.e., the date of receipt of equipment at the destination stores in good condition will be taken as date of delivery.

#### **8. FORCE MAJEURE:**

- a) The Supplier will not be liable for forfeiture of its performance security, penalty for late delivery or termination for default if and to the extent that it's delay in

performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

- b) For the purpose of this clause 'Force Majeure' means an event beyond the control of the Supplier and not involving the Suppliers' fault or negligence and not foreseeable. Such events may include but are not restricted to wars or revolutions, fires, floods, epidemics, earth quakes, Tsunami, quarantine restrictions and freight embargoes.
- c) If the Force Majeure situation arises, the supplier will promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier will continue to perform its obligations under the Contract as far as is reasonably possible, and will seek all reasonable alternative means for performance not prevented by the Force Majeure event.

#### **9. TERMINATION FOR DEFAULT :**

- a) The Purchaser without prejudice to any other remedy for breach of Contract, by written notices of default sent to the Supplier, may terminate this Contract in whole or part:
  - i) If the Supplier fails to deliver any or all of the Materials/equipment within the period(s) specified in the Contract, or within any extension thereof granted by the Purchaser.
  - ii) If the supplier fails to perform any other obligations under the contract.
  - iii) If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.
- b) In the event the Purchaser terminates the Contract in whole or in part, the Purchaser may procure, upon such terms and in such manner, as it deems appropriate, Materials/equipment or services similar to those undelivered and the Supplier will be liable to the Purchaser for any excess costs for such similar Materials/equipment or Services. However, the Supplier will continue performance of the Contract to the extent not terminated.

#### **10. TERMINATION FOR CONVENIENCE:**

- a) The Purchaser, by written notice sent to the supplier may terminate the contract, in whole or in part, at any time for its convenience. The notice of termination is for the Purchaser's convenience, the extent to which performance of the supplier under

the contract is terminated, and date upon which termination becomes effective.

- b) However the materials/equipment that are complete and ready for shipment within thirty (30) days after the supplier's receipt of notice of termination will be accepted by the Purchaser at the contract terms and prices.

**11. TERMINATION FOR INSOLVENCY:**

The Purchaser may at any time terminate the Contract by giving written notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or not affect any right of action or remedy, which has accrued or will accrue thereafter to the Purchaser.

**12. WARRANTY:**

The equipment/ material shall be guaranteed for satisfactory performance for a period of 18 months from the date of receipt of material/equipment at destination site/ TLC stores in good condition against defects proved to be due to faulty design of material/ workmanship. If during this period, any of the material is found defective they shall be repaired or replaced by you free of all costs to the TSTransco. To and fro freight charges shall also be to your account only.

**13. TAXES:**

Taxes as indicated in the price schedule at paragraph (2) are applicable. You shall agree, that if, at any time, any GST reported to have been paid has not been paid, or a lesser amount has been paid, or on subsequent adjudication or appeal or revision it is decided that a lesser amount is payable, you shall refund such amounts irrespective of time lag.

**14. STATUTORY VARIATIONS:**

Any variation up or down in statutory levy or new levies introduced after signing of the contract under this specification will be to the account of TSTransco, provided that in cases where delivery schedule is not adhered to by the supplier and there are upward variation/ revision after the agreed delivered date, the supplier will bear the impact of such levies and if there is downward variation / revision the TSTransco will be given credit to that extent. Statutory variation if any allowed, it is allowed only once during delivery period, i.e. at the time of delivery of goods at factory. In case of sub-vendor items, taxes & duties are inclusive in tender price and no statutory variation is applicable.

In cases where the bidder assumes less tax rates and become lowest, upward variation of taxes will not be considered. In case of the bought out items for which the prices are quoted all inclusive of taxes, statutory variation shall not be applicable.

**15. DISPATCH INSTRUCTIONS:**

The dispatch instructions for the equipment will be furnished separately on satisfactory scrutiny of acceptance test certificates. The prices indicated in clause (2) above shall remain unaltered whatever be the destination.

**16. INSPECTION:**

After completion of manufacture of the equipment/ material, routine tests shall be performed as per relevant standards and requisite copies of test certificates shall be furnished to the purchaser. Various components of the equipment shall be routine tested in accordance with approved standards and manufacture standards.

As soon as the material/ equipment are ready the supplier will duly send intimation to TSTransco by post/fax and carry out the tests in the presence of the representative of TSTransco. The Supplier shall give at least 15 days advance intimation to enable the Purchaser to depute his representative for witnessing acceptance and routine tests. All charges in connection with inspection shall be borne by the supplier.

The equipment should not be dispatched without final inspection of the tests, approval of test certificates and issue of specific dispatch instructions or specific waiver thereof from this office. The equipment shall reach the destination store/site within three weeks of issue of Dispatch Instructions.

**17. CONTRACT DRAWINGS:**

Approval by TSTransco to the supplier's drawings shall not relieve the supplier of his responsibility for correctness thereof or from results arising out of error or omission therein or from any obligation or liability under the contract. Any supplementary drawings necessary to permit the complete design of the installation prior to receiving the equipment shall also be supplied. Within two weeks of approval, six sets of all approved drawings and soft copy of drawings shall be furnished. One set of drawings and instruction manuals along with soft copy shall be sent along with each equipment at the time of dispatch. Copies of the drawings and manuals shall also be sent to other offices as indicated below.

Consignee	:	One set of approved drawings per consignee
Concerned Executive Engineer	:	Two Sets
To this office	:	Six sets.

**18. ERECTION, OPERATION & MAINTENANCE MANUALS:**

Erection, operation and maintenance manuals along with soft copy shall be supplied as per distributions given below giving detailed instructions with illustrations along with the equipment. They shall contain clear recommended schedule of maintenance for the guidance of the operating staff. Any items requiring the special attention of the operation engineer should be highlighted.

Consignee	:	One set per consignment
Concerned Executive Engineer	:	Two sets
To this office	:	Six sets

These shall be sent to the Divisional Engineers / Executive Engineers concerned.

**19. COMPLETENESS OF CONTRACT:**

All minor accessories that are normally necessary for satisfactory and efficient operation of the equipment shall be supplied by you free of cost to the TSTransco whether these are specifically mentioned or not in the specification, your tender schedules or in this purchase order and the equipment shall be complete in itself.

**20. GENERAL CONDITIONS OF CONTRACT:**

Except in so far as it is provided otherwise in this contract, you shall abide by the terms and conditions appended to the specification. Except as specifically accepted in this order the terms and conditions mentioned in your quotation under reference are not accepted.

**21. RISK:**

The risk in the property is entirely yours till the goods are received in good condition at the destination.

**22. PACKING:**

Each of the material/equipment shall be securely packed separately in such a manner as to withstand rough handling during rail and road transit up to site and as per latest IS/BSS/IEC.

**23. TESTS & TEST CERTIFICATES:**

All routine tests in accordance with relevant ISS/BSS/IEC specifications shall be conducted on the equipment. You shall intimate this office at least 15 days in advance as to the date when you propose to conduct the acceptance tests for deputing TSTransco's representative to witness the tests. Three copies of the test certificates containing the results of all the acceptance tests along with routine tests carried out shall be furnished for approval.

The test certificates shall be submitted immediately after the tests are conducted and got approved before the equipment is dispatched.

**24. MATERIAL & WORKMANSHIP:**

All the materials shall be of the best class and shall be capable of satisfactory operation in the tropics under service conditions without distortion or deterioration. No welding or filling or plugging of defective parts shall be permitted, unless otherwise specified they shall conform to the requirement of the appropriate Indian, British or American standards (where a standard specification covering the material in question has not been published the standards of the American society for testing of materials should be followed).

The entire design and construction shall be capable of withstanding the several stresses likely to occur in actual services and of resisting rough handling during transport.

**25. INSURANCE:**

The Materials / equipment supplied under the Contract will be fully insured against loss or damage incidental to manufacture or acquisition, transportation and delivery and also storage for 45 days at destination stores/site.

The insurance will be in an amount equal to 100% FADS value of material/ equipment on all risks basis. The policy will have a provision for extension to cover further storage if necessary at destination stores / site at TSTransco cost. The insurance beneficiary shall be TSTransco.

The supplier shall a) Initiate and pursue insurance claim till settlement, and b) Promptly arrange for repair and or replacement of any damaged items in full irrespective of settlement of insurance claim by the under writers, c) All costs because of insurance liabilities covered under the contract will be to supplier's account. The supplier shall provide the Purchaser with a copy of all insurance policies and documents taken out by him in pursuance of 'Contract'. Such copies of documents shall be submitted to the purchaser immediately after such insurance coverage. The supplier shall also inform the Purchaser in writing at least sixty (60) days in advance, regarding the expiry, cancellation and /or change in any of such documents and ensure revalidation/renewal etc., as may be necessary well in time.

The risks that are to be covered under the insurance shall be comprehensive and shall include but not limited to, the loss or damage in transit, storage, due to theft, pilferage riot, civil commotion, weather conditions, accident of all kinds, fire, flood, war risk (during

ocean transportation) bad or rough handling etc., The scope of such insurance shall cover the entire contract value.

All costs on account of insurance liabilities covered under the contract will be on supplier's account and will be deemed to have been included in the bid price.

The documentary proof towards insurance shall be submitted while transporting the material/equipment to the purchaser's destination.

**26. INTERCHANGEABILITY :**

All similar equipment and removable parts of similar equipment shall be interchangeable with each other.

**27. SPARES:**

You shall supply any spares required for the equipment that will be supplied under this order, whenever called upon to do so at fair prices and at the TSTransco's standard terms of payment within a period not exceeding the deliveries accepted therein.

**28. PROGRESS REPORTS:**

You shall furnish the program of works and progress reports on the manufacture of equipment to this office every month in triplicate till the supplies are completed.

**29. CORRESPONDENCE:**

- a) Your acknowledgement of this order and all correspondence of general or technical nature shall be addressed to the Chief Engineer/P&MM, TSTransco, Vidyut Soudha, Hyderabad –500 082.
- b) All correspondence regarding dispatches, payments and any other field matters shall be addressed to the concerned paying officer. Copies of such correspondence shall be marked to the concerned Superintending Engineer and to the Chief Engineer/P&MM, TSTransco, Vidyut Soudha, Hyderabad – 500 082. Copies of the correspondence regarding payments should also be marked to the Executive Director/Finance, TSTransco, Vidyut Soudha, Hyderabad – 500 082.

**30. JURISDICTION:**

All and any disputes or differences arising out of or touching this order shall be decided only by courts or tribunals situated in Hyderabad or Secunderabad cities. No suit or other legal proceedings shall be instituted elsewhere.

**31. SUPERVISION OF ERECTION, TESTING AND COMMISSIONING:**

You have to provide services of qualified personnel for supervision of erection, testing at site and commissioning of the equipment wherever required. The above services should be provided free of cost as per the tender specification.

**32. ACKNOWLEDGEMENT:**

Please acknowledge the receipt of this purchase order with your confirmation of its acceptance by you and the extra copy enclosed may please be returned with your signature in token of your acceptance.

Encl: GTP

Yours faithfully,  
**SD/-**

Chief Engineer/P&MM  
(Acting for and on behalf of TSTRANSCO)

**WE ACCEPT THE TERMS AND CONDITIONS OF THIS PURCHASE ORDER**

**SIGNATURE OF THE CONTRACTOR  
WITH SEAL AND DATE**

Copies to:

The Executive Director/Finance/ TSTransco /Vidyut Soudha/Hyderabad.

The Chief Engineer/Transmission/TSTransco/Vidyut Soudha/Hyderabad.

The Superintending Engineer/Transmission/ TSTransco /Vidyut Soudha/Hyderabad.

The Superintending Engineer/Quality Control/ TSTransco /Vidyut Soudha/Hyderabad.

The SAO/Pay & accounts/ TSTransco /Vidyut Soudha/Hyderabad along with Form-40.

The Superintending Engineer/OMC/Metro-Central/ TSTransco /2<sup>nd</sup> Floor,132kV NIMS GIS SS premises/ Erramanzil/Panjagutta/Hyderabad -82

The SAO/Metro-Central /TSTransco /2<sup>nd</sup> Floor, 132kV NIMS GIS SS premises/ Erramanzil/ Panjagutta/Hyderabad -82.

The Divisional Engineer/Transmission &Stores/Metro/Erragadda/ Hyderabad, 500 045.

Copy of this PO is available on <http://tgto.telangana.gov.in/>

**This order is placed against the indents indicated below:**

Sl. No.	CE/Transmission Reference UO.No.	Required for	220kV 800A Isolator metallics without earth switch ( Qty. in Nos.)
1	U.O.No.CE(Tr)/SE(Tr)/DE-SS/ADE-2/ F.TR.SS.A2.2174/19/D.No.157/20, Dt:23.06.2020	Augmentation of PTR capacity at 220kV SS Manthini.	2
2	U.O.No.CE(Tr)/SE(Tr)/DE-SS/ADE1/F.RMI 20-21/ D.No.282/20, Dt:21.09.2020.	RMI for the FY 2020-21	10
3	U.O.No.CE(Tr)/SE(Tr)/DE-SS/ ADE1/F.Rolling stock 21-22/ D.No.203/21, Dt:07.07.2021.	Rolling Stock FY:2021-2022	10
4	U.O.No.CE(Tr)/SE(Tr)/DE-SS/ADE2/ F.TR.SS.A2.5666/D.No.328/21, Dt:19.08.2021.	Augmentation of PTR capacity at 220kV SS Huzurabad	2
Total:			24

**GUARANTEED TECHNICAL PARTICULARS**  
**220kV, 800A Isolator metalics without earth switch**

Sl No	Description	Unit	M/s GR Power Switchgear Ltd., Hyderabad
1)	Manufacturer's Name & Address of manufacture & GSTN Number		GR Power Switchgear ltd., Hyd GST No.36AAACG7476M1Z2
2)	Type Designation & HSN (8 Digit code)		Center Post Rotating Horizontal Double Break- "DB"- HSN Code: 85353090
3)	Applicable Standards		IS: 9921(Part I to V)/ IEC- 62271-102
4)	Rated Voltage	kV	220
5)	Rated Frequency	Hz	50
6)	Outdoor/ Indoor	kV	Outdoor
7)	Whether all three poles are ganged together mechanically/electrically		Mechanically ganged
8)	Rated Normal Current		
a)	Under Normal conditions (as per IS/ IEC)	A	800
b)	Under Site conditions	A	800
9)	Rated short time withstand current for 1 sec. for Isolator & Earth switch	kA rms	40kA rms
10)	Rated peak withstand short circuit current for Isolator & Earth switch	kAp	100kAp
11)	Rated short circuit making current	kA	NA
12)	Rated magnetising current/ capacitive current make/ break capacity at 0.15% p.f.	A	0.7A at 0.15pf
13)	Temperature rise over ambient temperature 50 deg.C at site corresponding to		
a)	Max. continuous current	°C	Within the limits of values as specified in table 4 of (Page No.2) of IS:9921(Part II) of 1982 derated to 50°C/ IEC-62271-102
b)	Short time current	°C	
14)	Rated Insulation Levels		
a)	1.2/50 μ sec. lightning impulse withstand voltage (+ve or -ve polarity)		
	i) to earth	kVp	1050
	ii) across the open Isolator		
	- One terminal lightning impulse	kVp	1200
	- opposite terminal power frequency	kVp	NA
b)	250/2500 μ sec. switching impulse withstand voltage:		

Sl No	Description	Unit	M/s GR Power Switchgear Ltd., Hyderabad
	i) to earth	kVp	NA
	ii) across the open Isolator		
	- One terminal switching impulse	kVp	NA
	- opposite terminal power frequency	kVp	NA
c)	One minute power frequency withstand voltage		
	i) to earth	kV	460
	ii) across the terminal of open Isolator	kV	530
15)	Corona extinction voltage	kV	156
16)	Maximum Radio Interference Voltage at 0.5 MHz, 1.0 MHz, 1.5 MHz & 2 MHz at ..... kV ( $\mu$ V & corresponding kV-rms)	$\mu$ V	<1000 $\mu$ V
17)	Rated mechanical terminal load		
a)	Longitudinal (or straight)	N	800
b)	Transverse (or cross)	N	270
c)	Min Cantilever strength (Upright)	kg	Insulator are not in scope
18)	Total Operating Time		
a)	Opening time	sec	less than 12Sec
b)	Closing time	sec	less than 12Sec
19)	Main Contacts (Fixed & Moving) of Isolator switch & earth switch		
a)	Type		Reverse loop pressure relieving type
b)	Material		Hard drawn Electrolytic copper
c)	Whether contacts are Silver plated		Yes
d)	Thickness of silver coating	microns	25 Microns
e)	Contact Area	mm <sup>2</sup>	Line contact
f)	Contact pressure	Kg/mm <sup>2</sup>	medium pressure
g)	Current density		
	(at minimum cross section of switch blade)		
	i) Moving blade	A/ mm <sup>2</sup>	1.6
	ii) Terminal Pad	A/ mm <sup>2</sup>	0.8
	iii) Contacts	A/ mm <sup>2</sup>	1.6
	iv) Terminal Connectors	A/ mm <sup>2</sup>	1
h)	Fixed Contacts:		
	Cross-sectional area	mm <sup>2</sup>	2Nos(Jaws) 32mm $\times$ 4mm
	Moving Blades:		
	ii) Cross-sectional area	mm <sup>2</sup>	OD-38mm, ID- 28mm, Length- 3330mm

Sl No	Description	Unit	M/s GR Power Switchgear Ltd., Hyderabad
i)	Number of operations which the Isolator can withstand without deterioration of contacts	Nos.	1000
j)	Jumper Plate/ Aluminium Flat with current density	mm <sup>2</sup>	100mm × 12 mm
20)	Auxiliary contacts		
a)	Main Isolator		
	i) Total number of 'NO' (for purchaser's use)	Nos.	12
	ii) Total number of 'NC' (for purchaser's use)	Nos.	12
	iii) Rate Voltage	V	220V DC
	iv) Rated continuous current	A	10A
	v) Rated breaking current	A	2A DC with time constant of not less than 20ms
b)	Earth switch		
	i) Total number of 'NO' (for purchaser's use)	Nos.	NA
	ii) Total number of 'NC' (for purchaser's use)	Nos.	NA
	iii) Rate Voltage	V	NA
	iv) Rated continuous current	A	NA
	v) Rated breaking current	A	NA
c)	Whether arcing contacts provided, If so, type and material used		Yes, make before break after- GI Rod
21)	Minimum clearance in air:		
a)	Phase to phase clearance	mm	4500
b)	Phase to Ground clearance	mm	Equal to the dry arcing distance of the insulator selected.
c)	Between phases when Isolator is open:	mm	4500 (Center to Center)
d)	Center to Center distance of outer distance of outer poles in each phase(min)	mm	3200
22)	Base Channel	mm	145×80mm Length: 3600mm
23)	Bearings -		
a)	Type of bearings		Ball bearing
b)	Location of bearings		Below the rotating post insulators. One at the top and one at the bottom of the bearing housing.
c)	Type of lubricant for bearings		Grease lubricated for life time

Sl No	Description	Unit	M/s GR Power Switchgear Ltd., Hyderabad
24)	Terminal Clamp & Connectors		
a)	Suitable for		Twin Moose
b)	Manufacturer's Name		Legion/ Klemmen/GRPS
c)	Applicable Standard		IS:5561
d)	Material		
i	Clamp body		Aluminium Alloy, LM-6
ii	Bolts & Nuts		MS Hot dip galvanised
iii	Spring washers		Hot dip galvanised
e)	Rated Current	A	800
f)	Rated terminal Load	kg	within the limits of values as specified in IS:5561
g)	Weight of clamp complete with hardware	kg	1 to 2 Kgs(approx)
h)	Radio interference voltage	$\mu V$	<1000 $\mu V$
i)	Corona extinction voltage	kV	156
25)	Operating Mechanism		
a)	Name & address of Manufacturer		GR Power Switchgear Ltd.,
b)	Type of operating mechanism		Motor operated
c)	Whether separate operating mechanism provided for operation of Isolator pole and earth switch		Yes
d)	Electrical operation		
	i) Motor type (AC/ DC)		Ac- Squirrel Cage Induction motor
	ii) Applicable standard		IS: 325
	iii) Ratings – Voltage, Current, HP		415 V, 3 Phase, 1.02A, 0.5HP
	iv) Type of enclosure and, method of cooling		IP-55, TEFC
	v) Power required for closing and opening operation	W	0.373kW
	vi) Running time of motor for closing operation	Sec	less than 12Sec
	vii) Control supply for motor & power consumption	V, W	3-Phase, 415V, 0.5HP
e)	Type of manual operating mechanism for Isolator pole & earth switch		Main Switch: Emergency manual operation handle
f)	Force required to operate		30kgm
g)	Whether padlocking are included as per the specification		Yes
h)	Type of manual device		Cranking Type
i)	Weight of operating mechanism	kg	100kgs(approx)

Sl No	Description	Unit	M/s GR Power Switchgear Ltd., Hyderabad
26)	Type of interlocking between Isolator and Earthing switch		
a)	Resistance of operating and interlocking coils	kΩ	1.885kΩ for operating coil 6.19kΩ for interlocking coil.
b)	Details of following interlocks provided as per specification:		
i)	mechanical interlock between Isolator and earth switch		NA
ii)	electrical interlock between Isolator and earth switch		NA
iii)	electrical interlocking in association with Circuit Breaker		Yes
Iv)	electrical interlock to bring back all three poles to open position in case any pole fails to close within specified time		NA
v)	provision to cut-off supply to motor during manual operation and provision for de-coupling the motor		Yes
vi)	electrical scheme to provide remote alarm for pole discrepancy		No
vii)	Arrangement provided to prevent electrical or manual operation unless interlocks are satisfied		Yes
27)	Control Cabinet/ Marshalling box/ MOM Panel		
a)	Name & address of Manufacturer		GR Power Switchgear Ltd., Hyd
b)	Applicable standard		IS:13947
c)	Sheet thickness Top/ bottom/ side/ back/ door leaf	mm	3mm thick Aluminium Sheet
d)	Degree of protection provided		IP-55
e)	Colour of finish paint –		
	i) Out side		Natural finish
	ii) In side		Natural finish
f)	Control Wiring		
	i) Current & Voltage ratings	A, V	16A, 1100V
	ii) Control Wiring – Size & material of conductor		2.5Sqmm copper
g)	Terminal Blocks		
	i) Name & address of manufacturer		Elmex/Connectwel/ Jinson
	ii) Current & Voltage ratings	A, V	25A, 1100V
h)	Space heater rating at 240 V	W	80 W
i)	Provision of lock with keys	Yes/ No	Yes

<b>Sl No</b>	<b>Description</b>	<b>Unit</b>	<b>M/s GR Power Switchgear Ltd., Hyderabad</b>
j)	Dimensioned drawing (External & Internal) enclosed	Yes/No	Yes, Enclosed
k)	Control Cabinet/ Marshalling box internal lighting & Door switch for controlling		Yes, Enclosed
l)	Weight	kg	100kgs(approx)
m)	Plinth mounted/ structure mounted		Structure mounted
28)	a) Tandem Pipe		
	i) Size		32mm NB
	ii) Class		Class B
	iii) Material		GI Pipe
	iv) Applicable standard		IS:1239
	v) weight of zinc		450gm/Sqmm
	b) Down Pipe		
	i) Size (Internal & External dia.)	mm	50mm
	ii) Class		B
	iii) Material		GI
	iv) Applicable standard		IS:1239
	v) weight of zinc	gm/mm <sup>2</sup>	450
29)	Size & Weight		
a)	Weight of each pole	kg	250 (approx.)
b)	Space requirement i.e. Length		9500mm
c)	Dimensions		
	i) 3 phase Isolator		9500×3500×5800 mm
	ii) Isolator-Cum- earth switch		NA
d)	Size of largest part		Tandem pipe- 11meters

**SD/-**  
**Chief Engineer/P&MM**