



West Bengal State Electricity Distribution Company Limited

(A GOVT. OF WEST BENGAL ENTERPRISE)
OFFICE OF THE DIVISIONAL MANAGER
PURULIA DIVISION

TARIT BHAVAN, 2nd FLOOR,
PURULIA - 723101(W.B)

Tele. No. 03252-222735 : Fax No. 03252 - 222209: E-Mail ID - dm.prl.divn@gmail.com

Regd. Office: Vidyut Bhavan, Block -DJ, Sector - II, Bidhannagar, Kolkata - 700091,

Corporate Identity No. (CIN): U40109WB2007SGC113473, Web: www.wbsedcl.in

Ref. No. PRLD/T&P-1/2021/17/650

Dated: 24/08/2021

TENDER NOTICE

To,

M/s.....

.....

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Dear Sir(s),

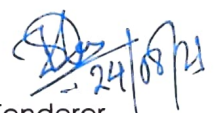
Sealed tenders with the firm's own seal are invited for the supply and delivery of the materials as detailed below as per attached Specification No. As furnish hereunder to our Purulia Divisional Store, Deshbandhu Road, Purulia. Tenders will be received up to 01.00 P.M. on **07.09.2021** Tenders will be opened on the same day at about 02.00 P.M. in presence of attending tenders. The minimum time of delivery should be strictly adhered to. Description literature or drawing if any should accompany tender. Reference number of enquiry, details of the materials and due date of submission of the tender should be prominently written on the envelope. A penalty clause may be incorporated while placing order for non-delivery of articles within the stipulated time. Total should be given in figure and word and price offered should remain valid for 90 days.

Yours faithfully,


DE & DIVISIONAL MANAGER
PURULIA DIVISION.

Item No.	Description of materials.	Quantity	Rate	Per	Total Amount	Time of Delivery.
01.	33 KV Polymer Comp. WH. FTG Pin Insulator (10KN – 900MM Creepage Distance) with FRP Diameter 33.5mm	1100 nos.				
02.	33 KV Polymer Comp. WH. FTG Disc Insulator – 70KN N.B.: The materials should be manufactured from the empanelled manufacturers as per the guideline given vide memo no. P&C/P-54/2019-20/PC-I/INSU/270 Dated 11.02.2021 of CE (P&C), WBSEDCL (Enclosed) and strictly follow the mandatory particulars specified by WBSEDCL(Enclosed). <u>ANNEXURE – B (Enclosed) should be clearly filled and submitted with the quotation.</u> The sample and delivered materials required to be approved by the sample approval committee of Purulia Division, WBSEDCL. Detail specification with make, Payable GST and HSN Code for each material should clearly be indicated in the front page of the quotation. <u>Sample copy of PO should be submitted with the quotation for rate justification.</u>	60 nos.				

Rates and time of delivery must be written on this tender form and on the reverse side, if necessary. The drawing or literatures issued from this office are to be returned along with this form. The Company reserves the right to reject or accept any or all tenders without assigning reason whatsoever.


Tenderer.
D.E. & DIVISIONAL MANAGER
PURULIA DIVISION.



West Bengal State Electricity Distribution Company Limited

(A GOVT. OF WEST BENGAL ENTERPRISE)
OFFICE OF THE DIVISIONAL MANAGER
PURULIA DIVISION

TARIT BHAVAN, 2nd FLOOR,
PURULIA - 723101(W.B)

Tele. No. 03252-222735 : Fax No. 03252 - 222209: E-Mail ID - dm.prl.divn@gmail.com

Regd. Office: Vidyut Bhavan, Block -DJ, Sector - II, Bidhannagar, Kolkata - 700091,

Corporate Identity No. (CIN): U40109WB2007SGCI13473, Web: www.wbsedcl.in

Distribution:

1. Notice Board, Purulia Division, WBSEDCL Ltd, Purulia.

Ref. No. PRLD/T&P-1/2021/17/650

Dated: 24/08/2021

Copy To,

1. The Zonal Manager, Medinipur Zone, WBSEDCL for kind information.
2. The Advisor & AGM, Corporate communication, Vidyut Bhavan with request for publication on departmental website.
3. The Regional Manager, Purulia Region, WBSEDCL, for kind information with request for displaying on notice board.
4. DE & Divisional Manager, Purulia Division, WBSEDCL.
5. The D.E. (Tech), Purulia Division, WBSEDCL, Purulia.
6. The A.E. (Tech), Purulia Division, WBSEDCL, Purulia
7. The Asstt. Manager (F&A), Purulia Division, WBSEDCL, Purulia.
8. The Store-in-Charge, Purulia Divisional Store, WBSEDCL, Purulia.

D.E. & DIVISIONAL MANAGER
PURULIA DIVISION.

**WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED**

(A Govt. of West Bengal Enterprise)

Office of the Chief Engineer : Procurement & Contracts Department

Vidyut Bhaban (4th Floor) : Bidhannagar : Block-DJ, Sector-II, Kolkata-700 091

Phone No. 033-2359-8397 : Fax No. 033-2359-1921 / e-mail -materialcontroller@yahoo.co.in

CIN- U40109WB2007SGC113473, website: www.wbsecl.in GSTIN No.19AAACW6953H12X

Memo No- P&C/P-54/2019-20/PC-I/INSU/ 270

dated : 11.02.2021

List of empanelled manufacturers in respect of different type of Polymer Insulators**Tender No. P-54/2019-20/PC-I/INSU opened on 08.07.2020 (extended)**

The following bidders have been empanelled for the following types of Polymer Insulators mentioned below against the above mentioned NIT with effect from 11.02.2021 and the empanelment will remain valid for a period of two years with provision for further extension of one year:

Sl. No.	Name & Factory Address of the Bidder	Empanelled for following type of polymer Insulators
1.	Adinath Industries E-45 (G2), Khushkhara Industrial Area, Bhiwadi-301707, Dist.-Alwar, Rajasthan.	(i) 11 KV 320 mm CD Composite Polymer Pin Insulator with FRP Diameter 24mm. (ii) 33 KV 900 mm CD Composite Polymer Pin Insulator with FRP Diameter 33.5mm. (iii) 11 KV 45 KN Polymer Disc Insulator (B & S Type) (iv) 33 KV 70 KN Polymer Disc Insulator (B & S Type)
2.	Deccan Electricals Pvt. Ltd. SY no.10, Kazipally Road, IDA, Gaddapotharam (Narsapur Road), Medak, Telangana-502319.	(i) 11 KV 320 mm CD Composite Polymer Pin Insulator with FRP Diameter 24mm. (ii) 33 KV 900 mm CD Composite Polymer Pin Insulator with FRP Diameter 33.5mm. (iii) 11 KV 45 KN Polymer Disc Insulator (B & S Type) (iv) 33 KV 70 KN Polymer Disc Insulator (B & S Type)
3.	HOBBS International Pvt. Ltd. Alampur, Argori, Andul Mouri, NH-6, Howrah- 711302.	(i) 11 KV 320 mm CD Composite Polymer Pin Insulator with FRP Diameter 24mm. (ii) 33 KV 900 mm CD Composite Polymer Pin Insulator with FRP Diameter 33.5mm. (iii) 11 KV 45 KN Polymer Disc Insulator (B & S Type) (iv) 33 KV 70 KN Polymer Disc Insulator (B & S Type)
4.	Imperial Porcelain Pvt. Ltd. E-247, 248, 248A, IGC Khara, Bikaner- 334601, Rajasthan.	(i) 11 KV 320 mm CD Composite Polymer Pin Insulator with FRP Diameter 24mm. (ii) 33 KV 900 mm CD Composite Polymer Pin Insulator with FRP Diameter 33.5mm. (iii) 11 KV 45 KN Polymer Disc Insulator (B & S Type) (iv) 33 KV 70 KN Polymer Disc Insulator (B & S Type)
5.	Prime Insulators Pvt. Ltd. Ceramic Zone, Block no.134/P2, AT & PO: Dalpur, Ta: Prantij, Dist.-Sabarkanta, Gujrat-383120.	(i) 11 KV 320 mm CD Composite Polymer Pin Insulator with FRP Diameter 24mm. (ii) 33 KV 900 mm CD Composite Polymer Pin Insulator with FRP Diameter 33.5mm. (iii) 11 KV 45 KN Polymer Disc Insulator (B & S Type) (iv) 33 KV 70 KN Polymer Disc Insulator (B & S Type)
6.	Rajeev Industries (India) NH-91, GT Road, opposite IOC petrol pump, Khurja-203131 (U.P.).	(i) 11 KV 320 mm CD Composite Polymer Pin Insulator with FRP Diameter 24mm. (ii) 33 KV 900 mm CD Composite Polymer Pin Insulator with FRP Diameter 33.5mm. (iii) 11 KV 45 KN Polymer Disc Insulator (B & S Type) (iv) 33 KV 70 KN Polymer Disc Insulator (B & S Type)
7.	Spark Insulators Pvt. Ltd. Plot no.-1/A/1, Phase-II, IDA Cherlapally, Hyderabad- 500051 (Telangana)	(i) 11 KV 320 mm CD Composite Polymer Pin Insulator with FRP Diameter 24mm.
8.	TarunaDechome Pvt. Ltd. F-51, Phase-II, Bichhwal Ind.Area, Bikaner-334001 (Rajasthan)	(i) 11 KV 320 mm CD Composite Polymer Pin Insulator with FRP Diameter 24mm. (ii) 33 KV 900 mm CD Composite Polymer Pin Insulator with FRP Diameter 33.5mm. (iii) 11 KV 45 KN Polymer Disc Insulator (B & S Type) (iv) 33 KV 70 KN Polymer Disc Insulator (B & S Type)
9.	Topline Ceramics Pvt. Ltd. Sriganganagar Road, I.G.C. Khara, Bikaner, Rajasthan-334601	(i) 11 KV 320 mm CD Composite Polymer Pin Insulator with FRP Diameter 24mm. (ii) 33 KV 900 mm CD Composite Polymer Pin Insulator with FRP Diameter 33.5mm. (iii) 11 KV 45 KN Polymer Disc Insulator (B & S Type) (iv) 33 KV 70 KN Polymer Disc Insulator (B & S Type)

Procurement of different type of Polymer Insulators mentioned above will be done as per policy of WBSEDCL and terms & conditions of NIT in reference above.

11/02/21
Chief Engineer

Procurement & Contract Department, WBSEDCL

SPECIFICATION FOR POLYMER PIN INSULATOR

Scope : This specification cover the design, manufacturing, testing at manufacturers works, transport to site, insurance, unloading & storage of 11 KV & 33 KV Polymer Pin Insulator suitable for use in 11 KV & 33 KV Overhead Lines situated in any part of West Bengal under the jurisdiction of WBSEDCL.

General Requirements:

1. The Composite insulators will be used on lines on which the conductor will be ACSR of size up to 200 Sq.mm. The insulators should withstand the conductor tension, the reversible wind load as well as the high frequency vibrations due to wind.
2. Insulator shall be suitable for 3 Phase, 50 Hz effectively earthed 11KV Overhead Lines and 33 KV Impedance Grounded distribution systems in a moderately/heavily polluted atmosphere.
3. Bidder must be an indigenous manufacturer and supplier of composite insulators of rating 11KV or above or must have developed proven in house technology and manufacturing process for composite insulators of above rating. The Bidder shall furnish necessary evidence in support of the above along with the bid, which can be in the form of certification from the utilities concerned, or any other documents to the satisfaction of the owner.
4. Insulator shall be suitable for the long Rod Type.
5. Insulators shall have sheds with good self-cleaning properties. Insulator shed profile, spacing, projection etc. and selection in respect of polluted conditions shall be generally in accordance with the commendation of IEC- 60815/ IS: 13134.
6. The tolerances on all dimensions e.g. diameter, length and creepage distance shall be allowed as follows in line with-IEC 61109:

$$\begin{aligned} &\pm (0.04d + 1.5) \text{ mm when } d \leq 300 \text{ mm} \\ &\pm (0.025d+6) \text{ mm when } d > 300 \text{ mm} \end{aligned}$$

Where, d being the dimensions in millimetres for diameter, length or creepage distance as the case may be. However, no negative tolerance shall be applicable to creepage distance.

7. The composite insulators including the end fitting connection shall be standard design suitable for use with the hardware fittings of any make conforming to relevant IEC/IS standards.

8. All surfaces shall be clean, smooth, without cuts, abrasions or projections. No part shall be subjected to excessive localized pressure. The insulator and metal parts shall be so designed and manufactured that it shall avoid local corona formation and not generate any radio interference beyond specified limit under the operating conditions.

Service condition : The insulators to be supplied against this specification shall be suitable for satisfactory continuous operation under the following topical condition :

- | | |
|----------------------------------|---|
| a) Max. ambient temperature | : 50 ° C |
| b) Min. ambient temperature | : -5 ° C |
| c) Relative humidity | : 10 % to 100 % |
| d) Average number of rainy days | : 100 / annum. |
| e) Max. Annual Rainfall | : 1500 mm |
| f) Max. Wind Pressure | : 150 Kg/ sq. Meter |
| g) Max. Wind Velocity | : 50 Km/ hour |
| h) Max. Altitude above MSL | : 1000 Meter. |
| i) Seismic level | : 0.3 g (Horizontal acceleration) |
| j) Average Thunder storm | : 45 Days per annum. |
| k) Climatic condition | : Moderately hot and humid tropical climate, conducive to rust and fungus growth. Pollution level is high. Some area with seashores having saline atmosphere. |

System Parameters:

- | | |
|----------------------------|------------------|
| a) Nominal system voltage | : 11 KV & 33 KV. |
| b) Highest system voltage | : 12 KV & 36 KV. |
| c) Power frequency | : 50 Hz. |

[Signature]
20/3/2020

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20.03.2020

[Signature] 20/3/2020
Chief Engineer
Procurement & Contract Deptt.
WBSEDCL
Vidyut Bhavan, Kolkata-700091

2. Brittle Fracture Resistance Test: Brittle fracture test shall be carried out on naked rod along with end fittings by applying "1N HNO₃ acid" (63 g conc. HNO₃ added to 937 g water) to the rod. The rod should be held at 80% of SML for the duration of the test. The rod should not fail within the 96 Hour test duration. Test arrangement should ensure continuous wetting of the rod with Nitric acid.

3. Recovery of Hydrophobicity & Corona Test:

i) The surface of selected samples shall be cleaned with Isopropyl alcohol. Allow the surface to dry and spray with water. Record the Hydrophobicity classification in line with STRI guide for Hydrophobicity classification (Extract enclosed at Annexure-D) Dry the sample surface.

(ii) The sample shall be subjected to mechanical stress by bending the Sample over a ground electrode. Corona is continuously generated by applying 12 kV to a needle like electrode placed 1 mm above the sample surface. Tentative arrangement shall be as shown in Annexure-E. The test shall be done for 100 hrs.

(iii) Immediately after the corona treatment, spray the surface with Water and record the HC classification. Dry the surface and repeat the corona treatment as at Clause-2 above. Note HC classification. Repeat the cycle for 1000 Hrs. or until an HC of 6 or 7 is obtained. Dry the sample surface.

(iv) Allow the sample to recover and repeat hydrophobicity Measurement at several time intervals. Silicone rubber should recover to HC 1 - HC 2 within 24 to 48 hours, depending on the Material and the intensity of the corona treatment.

4. Chemical composition test for Silicon content:

The content of silicon in the composite polymer shall be evaluated by EDX (Energy Dispersion X-ray) Analysis or Thermo-gravimetric analysis. The test may be carried out at CPRI or any other NABL accredited laboratory.

MANDATORY PARTICULARS FOR 11 KV & 33 KV PIN INSULATOR

Sl. No.	Description	11 KV Pin	33 KV Pin
1.	Type of Insulator	Polymeric composite Pin Insulator	Polymeric composite Pin Insulator
2.	Reference Standard	IEC 61109	IEC 61109
3.	Material of FRP Rod	Boron free ECR	Boron free ECR
4.	Material of sheds	Silicon Rubber	Silicon Rubber
5.	Minimum silicon content in weather sheds	30% by weight	30% by weight
6.	Method of fixing of metal end fittings to rod	controlled compression technique	controlled compression technique
7.	Material of Top End Fittings	SGCI /MCI/FORGED STEEL	SGCI /MCI/FORGED STEEL
8.	Material of Bottom End Fittings	SGCI /MCI/FORGED STEEL	SGCI /MCI/FORGED STEEL
9.	Material of sealing compound	RTV Silicon	RTV Silicon
10.	Colour of sheds	Grey	Grey
11.	Rated voltage	11 KV	33 KV
12.	Highest voltage	12 KV	36 KV
13.	Dry Power Frequency Withstand voltage	60 KV	95 KV
14.	Wet Power Frequency Withstand voltage	35 KV	75 KV
15.	Dry Power Frequency Flashover Voltage	75 KV	130 KV
16.	Wet Power Frequency Flashover Voltage	45 KV	90 KV
17.	Dry Lightning Impulse withstand voltage	Positive : 75 KV Negative : 80 KV	Positive : 170 KV Negative : 180 KV
18.	Dry Lightning Impulse Flashover voltage	Positive : 95 KV Negative : 100 KV	Positive : 210 KV Negative : 230 KV
19.	RIV at 1 MHz when energised at 10 KV / 30 KV (rms) under dry condition	< 100 microvolt	< 100 microvolt
20.	Creepage distance (min)	320 mm	900 mm

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20.03.2020

21.	Minimum bending load	5 KN	10 KN
22.	Diameter of FRP Rod	24 mm	33.5 mm
23.	Length of FRP Rod (min)	165 mm	300 mm
24.	Minimum thickness of housing	3 mm	3 mm
25.	Minimum dry arc distance	150 mm	300 mm
26.	Method of fixing sheds to housing	Injection moulding	Injection moulding
27.	Visible Discharge Voltage (PF)	9 KV	27 KV
28.	No of weather sheds (min)	Three	Eight
29.	Type of sheds	Aerodynamic	Aerodynamic
30.	Diameter of bottom end fitting	20 mm	24 mm
31.	Minimum thread length of bottom end fitting	110 mm	130 mm (min)
32.	Minimum shank diameter	20 mm	24 mm
33.	Minimum collar diameter	40 mm	48 mm
34.	Minimum collar thickness	5 mm	5 mm
35.	No. of 1 inch stainless steel nuts	2 nos	2 nos
36.	Thickness of spring washer	4 mm	4 mm
37.	Type of packing	Wooden / Corrugated box	Wooden / Corrugated box
38.	No of Insulators In each pack	Twenty	Ten
39.	Marking		
40.	Guarantee	12 months from commissioning or 18 months from the date of last despatch.	12 months from commissioning or 18 months from the date of last despatch.

ANNEXURE B

G T P TO BE FILLED UP BY THE BIDDER

Name of the manufacturer:

Address of works:

Sl. No.	Description	11 KV Pin Insulator	33 KV Pin Insulator
1.	Type of Insulator		
2.	Reference Standard		
3.	Material of FRP Rod		
4.	Material of sheds		
5.	Minimum silicon content in weather sheds		
6.	Method of fixing of metal end fittings to rod		
7.	Conductor groove		
8.	Inclination of shed		
9.	Material of Top End Fittings		
10.	Material of Bottom End Fittings		
11.	Material of sealing compound		
12.	Colour of sheds		
13.	Rated voltage		
14.	Highest voltage		
15.	Dry Power Frequency Withstand voltage		
16.	Wet Power Frequency Withstand voltage		

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20-03-2020

17.	Dry PF Flashover Voltage		
18.	Wet PF Flashover Voltage		
19.	Dry Lightning Impulse withstand voltage		
20.	Positive		
21.	Negative		
22.	Dry Lightning Impulse Flashover voltage		
23.	Positive		
24.	Negative		
25.	RIV at 1 MHz when energised at 10 KV / 30 KV (rms) under dry condition		
26.	Creepage distance (min)		
27.	Visible Discharge Voltage (PF)		
28.	Minimum bending load		
29.	Diameter of FRP Rod		
30.	Length of FRP Rod		
31.	Diameter of Weather sheds		
32.	Thickness of housing		
33.	Dry arc distance		
34.	Method of fixing sheds to housing		
35.	No of weather sheds		
36.	Type of sheds		
37.	Diameter of bottom end fitting		
38.	Thread length of bottom end fitting		
39.	Minimum shank diameter		
40.	Minimum collar diameter		
41.	Minimum collar thickness		
42.	No. of 1 inch stainless steel nuts		
43.	Thickness of spring washer		
44.	Weight of composite insulator		
45.	Type of packing		
46.	No of Insulators In each pack		
47.	Gross weight of package		
48.	Marking		
49.	Guarantee		

20/3/2020

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20.03.2020

20/3/2020
Chief Engineer
Procurement & Contract Deptt.
WBSEDCL
Vidyut Bhavan, Kolkata-700091

SPECIFICATION FOR POLYMER DISC INSULATOR

Scope : This specification cover the design, manufacturing, testing at manufacturers works, transport to site, insurance, unloading & storage of 11 KV & 33 KV Polymer Disc Insulator (B & S type) suitable for use in 11 KV & 33 KV Overhead Lines situated in any part of West Bengal under the jurisdiction of WBSEDCL.

General Requirements:

1. The Composite insulators will be used on lines on which the conductor will be ACSR of size up to 200 Sq.mm. The insulators should withstand the conductor tension, the reversible wind load as well as the high frequency vibrations due to wind.
2. Insulator shall be suitable for 3 Phase, 50 Hz effectively earthed 11KV Overhead Lines and 33 KV Impedance Grounded distribution system in a moderately/heavily polluted atmosphere.
3. Bidder must be an indigenous manufacturer and supplier of composite insulators of rating 11KV or above or must have developed proven in house technology and manufacturing process for composite insulators of above rating. The Bidder shall furnish necessary evidence in support of the above along with the bid, which can be in the form of certification from the utilities concerned, or any other documents to the satisfaction of the owner.
4. Insulators shall be suitable for both Suspension & Strain type of load and shall be of B&S type.
5. Insulator shall be suitable for the long Rod Type. The diameter of Composite Insulator shall be as per technical specification.
6. Insulators shall have sheds with good self-cleaning properties. Insulator shed profile, spacing, projection etc. and selection in respect of polluted conditions shall be generally in accordance with the commendation of IEC- 60815/ IS: 13134.
7. The tolerances on all dimensions e.g. diameter, length and creepage distance shall be allowed as follows in line with-IEC 61109:

$$\pm (0.04d \pm 1.5) \text{ mm when } d \leq 300 \text{ mm}$$
$$\pm (0.025d \pm 6) \text{ mm when } d > 300 \text{ mm}$$

Where, d being the dimensions in millimetres for diameter, length or creepage distance as the case may be. However, no negative tolerance shall be applicable to creepage distance.

8. The composite insulators including the end fitting connection shall be standard design suitable for use with the hardware fittings of any make conforming to relevant IEC/IS standards.


9. All surfaces shall be clean, smooth, without cuts, abrasions or projections. No part shall be subjected to excessive localized pressure. The insulator and metal parts shall be so designed and manufactured that it shall avoid local corona formation and not generate any radio interference beyond specified limit under the operating conditions.

10. Inter- changeability: The composite insulator together with the B&S fittings shall be of standard design suitable for use with the hardware of any other indigenous make conforming to relevant standards referred herewith.

Service condition : The insulators to be supplied against this specification shall be suitable for satisfactory continuous operation under the following topical condition :

- | | |
|---------------------------------|---|
| a) Max. ambient temperature | : 50 ° C |
| b) Min. ambient temperature | : -5 ° C |
| c) Relative humidity | : 10 % to 100 % |
| d) Average number of rainy days | : 100 / annum. |
| e) Max. Annual Rainfall | : 1500 mm |
| f) Max. Wind Pressure | : 150 Kg/ sq. Meter |
| g) Max. Wind Velocity | : 50 Km/ hour |
| h) Max. Altitude above MSL | : 1000 Meter. |
| i) Seismic level | : 0.3 g (Horizontal acceleration) |
| j) Average Thunder storm | : 45 Days per annum |
| k) Climatic condition | : Moderately hot and humid tropical climate, conducive to rust and fungus growth. Pollution level is high. Some area with seashores |


06/3/2020
Chief Engineer
Procurement & Contract Deptt.
WBSEDCL
Kolkata-700091


A.P.P.E.
06.03.2020


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13. No material shall be dispatched from its point of manufacture before it has been satisfactorily inspected and tested unless the owner in writing waives off the inspection. In the later case also the material shall be dispatched only after satisfactory testing specified herein has been completed.

14. The acceptance of any quantity of material shall in no way relieve the Supplier of his responsibility for meeting all the requirements of the specification and shall not prevent subsequent rejection, if such material are later found to be defective.

ANNEXURE: A

Test on Insulator units :

1. RIV Test (Dry): The insulator string along with complete hardware fittings shall have a radio interference voltage level below 100 micro volts at one MHz when subjected to 50 Hz voltage of 10 kV & 30 kV for 11 kV & 33 kV class insulators respectively under dry condition. The test procedure shall be in accordance with IS: 8263/IEC: 437/CISPR 18-2.

2. Brittle Fracture Resistance Test : Brittle fracture test shall be carried out on naked rod along with end fittings by applying "1N HNO₃ acid" (63 g conc. HNO₃ added to 937 g water) to the rod. The rod should be held at 80% of SML for the duration of the test. The rod should not fail within the 96 Hour test duration. Test arrangement should ensure continuous wetting of the rod with Nitric acid.

3. Recovery of Hydrophobicity & Corona Test:

i) The surface of selected samples shall be cleaned with isopropyl alcohol. Allow the surface to dry and spray with water. Record the Hydrophobicity classification in line with STRI guide for Hydrophobicity classification (Extract enclosed at Annexure-D) Dry the sample surface.

(ii) The sample shall be subjected to mechanical stress by bending the Sample over a ground electrode. Corona is continuously generated by applying 12 kV to a needle like electrode placed 1 mm above the sample surface. Tentative arrangement shall be as shown in Annexure-E. The test shall be done for 100 hrs.

(iii) Immediately after the corona treatment, spray the surface with Water and record the HC classification. Dry the surface and repeat The corona treatment as at Clause-2 above. Note HC classification. Repeat the cycle for 1000 Hrs. or until an HC of 6 or 7 is obtained. Dry the sample surface.

(iv) Allow the sample to recover and repeat Hydrophobicity Measurement at several time intervals. Silicone rubber should recover to HC 1 - HC 2 within 24 to 48 hours, depending on the Material and the intensity of the corona treatment.

4. Chemical composition test for Silicon content:

The content of silicon in the composite polymer shall be evaluated by EDX (Energy Dispersion X-ray) Analysis or Thermo gravimetric analysis. The test may be carried out at CPRI or any other NABL accredited laboratory.

SPECIFIC TECHNICAL PARTICULARS FOR 11 KV & 33 KV DISC INSULATOR

	11 KV Disc	33 KV Disc
Type of insulator	Polymeric composite Disc Insulator	Polymeric composite Disc Insulator
Reference Standard	IEC 61109	IEC 61109
Material of FRP Rod	Boron free ECR	Boron free ECR
Material of sheds	Silicon Rubber	Silicon Rubber
Type of metal end fittings	Ball & Socket	Ball & Socket
Nominal Ball Pin Diameter	16 mm	16 mm
Material of end fittings	SGCI / MCI	SGCI / MCI
Material of sealing compound	RTV Silicon	RTV Silicon
Colour of sheds	Grey	Grey
Rated voltage	11 KV	33 KV
Highest voltage	12 KV	36 KV

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06-03-2020

Dry Power Frequency Withstand voltage	60 KV	95 KV
Wet Power Frequency Withstand voltage	35 KV	75 KV
Dry Power Frequency Flashover Voltage	75 KV	130 KV
Visible Discharge Voltage (PF)	9 KV	27 KV
Wet Power Frequency Flashover Voltage	45 KV	90 KV
Dry Lightning Impulse withstand voltage	Positive : 75 KV Negative : 80 KV	Positive : 170 KV Negative : 180 KV
Dry Lightning Impulse Flashover voltage	Positive : 95 KV Negative : 100 KV	Positive : 210 KV Negative : 230 KV
RIV at 1 MHz when energised at 10 KV / 30 KV (rms) under dry condition	< 50 microvolt	< 100 microvolt
Creepage distance (min)	320 mm	900 mm
Specified mechanical load	45 KN	70 KN
Diameter of FRP Rod (min)	16 mm	16 mm
Length of FRP Rod (min)	200 mm	425 mm
Thickness of housing	3 mm	3 mm
Dry arc distance	170 mm	380 mm
Method of fixing sheds to housing	Injection moulding	Injection moulding
No of weather sheds (min)	Three	Eight
Type of sheds	Aerodynamic	Aerodynamic
Type of packing	Wooden/Corrugated-box	Wooden/Corrugated box
No of insulator in each pack	Thirty	Twenty
Guarantee	12 months from commissioning or 18 months from the date of last despatch.	12 months from commissioning or 18 months from the date of last despatch.

ANNEXURE B
GTP TO BE FILLED UP BY THE BIDDER


Name of the manufacturer:

Address of works:

	11 KV Disc	33 KV Disc
Type of insulator		
Reference Standard		
Material of FRP Rod		
Material of sheds		
Type of metal end fittings		
Material of end fittings		
Nominal Ball Pin Diameter		
Material of sealing compound		
Colour of sheds		
Rated voltage		
Highest voltage		
Dry Power Frequency Withstand voltage		
Wet Power Frequency Withstand voltage		
Dry PF Flashover Voltage		
Wet PF Flashover Voltage		
Dry Lightning Impulse withstand voltage		
Positive		
Negative		


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Dry Lightning Impulse Flashover voltage		
Positive		
Negative		
RIV at 1 MHz when energised at 10 KV / 30 KV (rms) under dry condition		
Creepage distance (min)		
Visible Discharge Voltage (PF)		
Specified mechanical load		
Diameter of FRP Rod (min)		
Length of FRP Rod		
Diameter of Whether sheds		
Thickness of housing		
Dry arc distance		
Method of fixing sheds to housing		
No of weather sheds		
Type of sheds		
Diameter of bottom end fitting		
Weight of composite insulator		
Type of packing		
No of insulator in each pack		
Weight of Insulator		
Gross weight of package		
Marking		
Guarantee		


06/3/2020

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06.03.2020


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