



**MAHAVITARAN**

Maharashtra State Electricity Distribution Co. Ltd.

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**SPECIFICATION NO. MSEDCL/ DIST / MM-III /01/2008/R1(010111)**

**SPECIFICATION**

**FOR**

**GUY STRAIN INSULATORS (STAY INSULATORS)**

**MAHARASHTRA STATE ELECTRICITY DISTRIBUTION COMPANY LTD**

**TECHNICAL SPECIFICATION FOR GUY STRAIN INSULATORS**

**[STAY INSULATORS]**

**[SPECIFICATION NO. DIST:MM(III)- 1/2008/R1(010111)]**

**[BASED ON OLD SPEC. DIST : 02/92(R-1)]**

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**MAHARASHTRA STATE ELECTRICITY DISTRIBUTION COMPANY LTD.**

**TECHNICAL SPECIFICATION FOR GUY STRAIN INSULATORS**  
**SPECIFICATION NO. DIST/MM-III -1/2008/R1(010111)**

**1.0 SCOPE:**

The specification covers porcelain guy strain insulators for use in rural electrification system.

**2.0 CLIMATIC CONDITIONS**

The insulators specified herein shall be suitable for outdoor use under the following climate conditions.

2.1	Maximum ambient temperature (Degree C)	50
2.2	Maximum temperature in shade (Degree C)	45
2.3	Minimum temperature of Air in shade (Degree C)	3.5
2.4	Relative humidity (Percent)	10 to 100
2.5	Maximum annual rainfall (mm)	1450
2.6	Maximum wind pressure (kg. / sq. M.)	150
2.7	Maximum altitude above mean sea level (Meter)	1000
2.8	Isoceramic level (days per year)	50
2.9	Seismic level (Horizontal Acceleration)	0.3 g
2.10	Moderately hot and humid tropical climate conducive to rust and fungus growth.	

**3.0 APPLICABLE STANDARDS**

Except when they conflict with the specific requirements of this specification, the insulators shall comply with IS: 5300-1969 or the latest version thereof.

**4.0 GENERAL REQUIREMENTS**

**4.1** The porcelain shall be sound, free from defects, thoroughly vitrified and smoothly glazed.

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**4.2** The design of the insulators shall be such that the stresses due to expansion and contraction in any part of the insulator shall not lead to its deterioration.

**4.3** The glaze shall be white in colour for designation A insulators & brown in colour for designation C insulators. The glaze shall cover the entire porcelain surface parts except those areas that serve as supports during firing.

## **5.0 TYPE OF INSULATORS**

**5.1** The standard guy strain insulators shall be of designation 'A' and 'C' as per IS: 5300/1969 or its latest revision.

**5.2** The recommended type of guy strain insulators for use on guy wires of overhead lines of different voltage levels are as follows:

Power line voltage	Designation of insulators
415/240 V	A
11000 V	C
33000 V	C (2 insulators to be used in series)

## **6.0 INSULATION CHARACTERISTICS:**

The dimensions of guy strain insulators, basic insulation level, minimum creepage distance & mechanical strength etc. shall be as follows.

Sr. No	Designation of insulator	Nominal System voltage V (rms)	Length (mm)	Diameter (mm)	Cable hole Dia (mm)	Min. failing load kN	Min. creepage distance (mm)	Dry one min. Power Frequency Withstand voltage kV(rms)	Wet one min. Power Frequency Withstand voltage kV(rms)	Drawing Reference Drg No. 63-593
1	2	3	4	5	6	7	8	9	10	11
1.	A	415/240V	90	65	16 ±1.5	44	41	18	8	Fig. 1
2.	C	11000V	140	85	25 ±1.5	88	57	27	13	Fig. 2

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## **7.0 TESTS**

The insulators shall comply with the following routine, type and acceptance tests as per IS : 5300.

### **7.1 Type tests**

- a) Visual examination
- b) Verification of dimensions
- c) Temperature cycle test
- d) Dry one minute power frequency withstand test
- e) Wet one minute power frequency withstand test
- f) Mechanical strength test
- g) Porosity test

### **7.2 Acceptance test**

(To be conducted in the following order):

7.2.1 The insulators, after having withstood the routine test shall be subjected to the following acceptance tests in the order given below:

- a) Verification of Dimensions.
- b) Temperature cycle test
- c) Mechanical strength test
- d) Porosity test

7.2.2 The number of insulators to be selected at random from the lot shall be in accordance with the table 2 of IS : 5300/1969 which is reproduced below:

Lot size	First Sample Size
(1)	(2)
Up to 500	As agreed to between purchaser & supplier
501 to 800	12
801 to 3200	16
3201 to 8000	18
8001 and above	20

7.2.3 The insulators selected in accordance with 7.2.2 above shall be divided upto two equal parts and subjected to the tests indicated as below:

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Tests	Part of sample
a) & b)	Both parts
c)	First part
d)	Second part

If more than one insulator fails to comply with any of the acceptance tests, the lot shall be rejected.

If one insulator fails to comply with any of the tests, a fresh quantity equal to twice the first quantity shall be subjected to retesting. The retesting shall comprise the test in which the failure occurred preceded by those test which may be considered to have influenced the results of the original tests. If no failure occurs in the re-test, the lot shall be accepted.

### **7.3 Routine tests**

- i) Visual examination

## **8.0 TESTING FACILITIES**

**8.1** The tenderer must clearly indicate what testing facilities are available in the works of the manufacturer and whether the facilities, are adequate to carry out all the routine as well as type tests. These facilities should be made available to M.S.E.D.C.L.'s Engineers if deputed to carry out or witness the tests. If any tests cannot be carried out at the manufacturer's works, the reasons should be clearly stated in the tender.

**8.2** The tenderer shall furnish detailed type test reports of the offered L.T. Stay Insulators as per clause 7.1 of this specification. All the above Type Tests shall be carried out at laboratories, which are accredited, by the National Accreditation Board of Testing and Calibration Laboratories (NABL) of Government of India to prove that the insulators offered meet the requirements of the specification. These Type Tests should have been carried out within five years prior to the date of opening of this tender. However, the tenderers who have supplied the L.T. Stay Insulators to the M.S.E.D.C.L. against order from Central Purchase Agency of M.S.E.D.C.L. shall be exempted from submission of Type Test Report against this tender provided.

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- i) There offered L.T. Stay Insulators are already fully Type Tested at Laboratories accredited by the National Accreditation Board of Testing and Calibration Laboratories (NABL) within five years prior to the date of opening of the tender.
- ii) There is no change in the design of Type tested L.T. Stay Insulators and those offers against this tender.
- iii) Such tenderers complying (i) and (ii) above shall furnish and undertaking in the format schedule “F” enclosed herewith.

The detailed Type Test Reports along with the relevant oscillograms/certified drawings etc. or undertaking seeking exemption from their submission in the format schedule “F” are to be submitted along with the offer.

The successful tenderer shall take approval/waival of Type Test from C.E. (Dist.), M.S.E.D.C.L., Prakashgad, Bandra, Mumbai prior to the commencement of supply.

The purchaser reserves the right to demand repetition of some or all the Type test in presence of purchaser’s representative at purchaser’s cost. For this purpose, the tenderer shall quote unit rates for carrying out each Type Test. However, such unit rates will not be considered for evaluation of the offer. In case the unit fails in the Type Tests, the complete supply shall be rejected.

**8.3** The successful tenderer shall submit a separate test certificate for each batch of insulators manufactured or consignment or part thereof supplied. The test certificate should clearly indicate the results of the routine, and sample tests carried out and the name of laboratory in which the tests were carried out with date of test etc. The certificate issued by recognized testing laboratory, or from their own works will be only accepted.

**8.4** If required, the M.S.E.D.C.L. shall subject the consignment of insulators supplied to the aforementioned test. The testing under this clause will be carried out in any laboratory including M.S.E.D.C.L.’s own laboratory. Notice of such tests will be given by the M.S.E.D.C.L. to the supplier by ordinary post. However, the date of testing will not be postponed or altered at the request of the supplier. The supplier is at liberty to be present during this test.

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## **9.0 MARKING**

**9.1** Each insulator shall be legibly and indelibly marked to show the following:

- a) Name or trade mark of the manufacturer
- b) Year of manufacturer
- c) ISI certificate, mark, if any.
- d) 'MSEDCL' Marking.

**9.2** Marking on porcelain shall be applied before firing.

## **10.0 PACKING**

All insulators shall be packed in suitable double gunny bags and shall be transported by road.

## **11.0 INSPECTION:**

The M.S.E.D.C.L. may depute an Engineer to witness the routine and sample tests at their manufacturer's works for which advance intimation shall be given the manufacturers whenever a lot is ready for dispatch. All reasonable facilities, should be made available without any charge to the inspector (representing the purchaser), to satisfy him that the material, is being supplied in accordance with this specification.

## **12.0 SCHEDULES:**

The tenderer shall fill in the following schedule, which is part of the tender specification and offer. If the schedules are not submitted duly filled in with the offer, the offer shall be liable for rejection.

- |              |                                    |
|--------------|------------------------------------|
| Schedule 'A' | - Guaranteed Technical Particulars |
| Schedule 'C' | - Tenderer's experience            |
| Schedule 'F' | - Proforma of Undertaking.         |

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**SCHEDULE – ‘A’**

**GUARANTEED TECHNICAL PARTICULARS.**

**L.T. /H.T. GUY STRAIN INSULATORS**

<b>Sr. No.</b>	<b>Parameter Name</b>	<b>Parameter type</b>
1.	Type of guy strain insulator L.T.(designation A) / H.T (designation C)	Text
2.	Are insulators manufactured as per IS : 5300/1969 or latest revisions thereof.	Boolean
3.	Type of material used in manufacture of the insulator	Text
4.	Colour of the guy strain insulator shall be white for designation A and Brown for designation C	Text
5.	Porcelain used in the manufacture is sound, free from defects, thoroughly vitrified and smoothly glazed.	Text
6.	The dimensions of the insulators are as per specified drawings of the specification.	Text
7.	Designation of insulator as per IS :5300/1969 (A or C)	Text
8.	Minimum failing load of Guy Strain insulator (44 KN / 88 KN)	Text
9.	Creepage distance (Min.) for Guy Strain insulator (41mm / 57mm)	Text
10.	Cable hole diameter (16mm / 25 mm)	Text
11.	Insulator suitable for use with Power line voltage V (rms)	Numeric
12.	Dry One Minute Power frequency withstand voltage KV (rms)	Numeric
13.	Wet One Minute Power frequency withstand voltage KV (rms)	Numeric
14.	Marking on the insulator is as per specification	Text
15.	Weight of insulator (Kg)	Numeric
16.	Insulators are type tested for the type tests as per specifications & relevant IS and Type Test Reports enclosed.	Boolean
17.	Any other particulars which the bidder may like to give	File

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**SCHEDULE – ‘C’**

**SCHEDULE OF TENDERER’S EXPERIENCE**

Tenderer shall furnish here a list of similar orders executed / under execution by him to whom a reference may be made by Purchaser in case consider such a reference necessary.

Sr. No.	Name of Client & Description order.	Value of order along with size & qty.	Period of supply and commissioning	Name & Address to whom reference may be made.

NAME OF FIRM\_\_\_\_\_

NAME & SIGNATURE OF TENDERER\_\_\_\_\_

DESIGNATION\_\_\_\_\_

DATE\_\_\_\_\_

**SEAL AND SIGNATURE OF TENDERER**

**SCHEDULE – ‘F’**

**PROFORMA OF UNDERTAKING**

We hereby confirm that stay Insulators/Shackle Insulators offered by us against this tender are of the same design and type as have been supplied to M.S.E.B. against earlier order No. \_\_\_\_\_ dtd. \_\_\_\_\_ and all the Type Test Reports thereof were approved by C.E. (Dist.) vide letter No. \_\_\_\_\_ dtd. \_\_\_\_\_ (copy enclosed.)

We further confirm that the said Type Test have been carried out at \_\_\_\_\_ within five years prior to the date of opening of present tender.

NAME OF FIRM\_\_\_\_\_

NAME & SIGNATURE OF TENDERER\_\_\_\_\_

DESIGNATION\_\_\_\_\_

DATE\_\_\_\_\_

**SEAL AND SIGNATURE OF TENDERER**