

TECHNICAL SPECIFICATION FOR LT SHACKLE INSULATORS**1. SCOPE:**

This specification covers the details of the LT Shackle White glazed/brown glazed insulators for use on 230/440V overhead lines and to supply to any of our Regional Stores/Divisional Stores/Destinations in Gujarat State as intimated by the DISCOM time to time.

2. APPLICABLE STANDARDS:

IS-1445/1977 (Second revision Including Amendment Nos. 1,2,3,4 &5) and its latest amendment if any.

3. GENERAL REQUIREMENT:

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

3.2 The glaze, unless otherwise specified shall be brown in colour. Except the parts on which the porcelain is supported during firing, which may please be left unglazed, all other surface of the insulators shall be effectively glazed.

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

3.4 The insulator shall be in one piece.

4. INSULATOR CHARACTERISTICS:

The insulators shall have the electrical and mechanical characteristics given in Table-I of IS-1445/1977 as under:

Sr. No	Type of Insulator	Dry P.F. Withstand voltage KV (rms)	Wet P.F. Withstand voltage KV (rms)	P.F. Puncture withstand voltage KV (rms)	Min. Failing load KN
1	Shackle	23	10	1.3 x the actual dry flash over voltage.	11.5 (Type-1)

N.B.: Size of shackle 90 x 75 mm as per Fig. 3 Type-I of IS: 1445/1977.

5. TESTS:

The Insulator shall comply with the following tests as per IS: 1445/1977 (Second revision Including Amendment Nos. 1,2,3,4 &5)

5.1 ROUTINE TEST:

The following test shall be carried out as routine test.

Visual Examination:- This test shall apply to all insulators.

5.2 TYPE TESTS: (IS: CI no. 8.1)

The firm shall submit the type test report from Govt. approved laboratory not more than Seven (07) years old along with offer. The following type tests are to be carried out on Two (02) nos. of samples in the order mentioned below as per IS: 1445/1977.

a) Tests on the Both Insulators:

- i) Visual examination (8.4)
- ii) Verification of dimensions (8.5)
- iii) Dry power frequency Voltage withstand test (8.6)
- iv) Wet power frequency voltage withstand test (8.7)
- v) Temperature Cycle test (8.8)

b) Tests on First Insulator:

- i) Mechanical failing load test (8.9)
- ii) Porosity test (8.11)

c) Test on Second Insulator:

- i) Power frequency puncture withstand test (8.10)

NOTE: - The identification marks of Firm provided on the insulator should be invariably mentioned in the Type Test Certificate.

5.3 ACCEPTANCE TESTS:

The test samples after having withstood the routine test shall be subjected to the following Acceptance Tests in the order indicated below:

- a) Visual examination (8.4)
- b) Verification of dimensions (8.5)
- c) Temperature Cycle test (8.8)
- d) Mechanical failing load test (8.9)

SAMPLESIZE-ACCEPTANCE AND REJECTION NUMBERS

Lot Size	First Sample Size	Second Sample Size	Acceptance Number	First Rejection Number	Second Rejection Number
(1)	(2)	(3)	(4)	(5)	(6)
Up to 500	8	8	0	2	2
501 to 1000	13	13	0	3	4
1001 to 3000	20	20	1	4	5
3001 to 10000	32	32	2	5	7
10001 to 35000	50	50	3	7	9
35001 and above	80	80	5	9	13

As per IS 1445:1977 Ammendment-5 January 1993 (Table-3, Clause-B-1.1)

The criteria for conformity should be as per IS 1445:1977 Ammendment-5, B-2

6. MARKING:

Each Insulator shall be legibly and indelibly marked to show the following.

- a) Name and Trade Mark of the manufacturer.
- b) Year of manufacturing.
- c) Word 'Name of DISCOM'.
- d) Minimum failing load in KN.

Marking on porcelain shall be printed and shall be applied before firing.

7. PACKING:

Each Insulator should be wrapped with dry grass. This shall be then packed in either crates/boxes/polythene or double gunny bags suitable for rough handling. No. of insulator should not be more than 50 in one bag.

8. TENDERSAMPLES:

The Tenderer has to submit Two (02) nos. of samples along with offer. The offer without samples will be straight-way rejected.

Manufacturer's Name
and Address:

GUARANTEED TECHNICAL PARTICULARS (G.T.P.)

Technical information and Guaranteed Technical Information for supply of LT Shackle Insulators

PART-'A'

Bidder has to confirm following important requirements.

Sr. No	Particulars	Confirmation
1	Insulator shall be manufactured as per IS: 1445/1977 (Second revision Including Amendment Nos. 1,2,3,4 &5)	Yes
2	Size of Insulator 90 x 75 mm. Type-I, Fig-3 of IS: 1445/1977	Yes
3	Dry power frequency withstand voltage 23 KV rms	Yes
4	Wet power frequency withstand voltage 10 KV rms	Yes
5	Power frequency puncture withstand voltage KV rms i.e. 1.3 x the actual dry flashover voltage	Yes
6	Mechanical failing load 11.5 KN (Min)	Yes
7	Tolerance in dimension as per relevant IS-1445/1977 (Second revision Including Amendment Nos. 1,2,3,4 &5)	Yes
8	Marking on insulator as per Clause No.6	Yes
9	Packing of insulators as per Clause No.7	Yes

PART-'B'

Bidder has to furnish below details about material.

1. Colour of glaze of LT Shackle Insulator
2. Type of firing the insulator
3. Details of test conducted on raw material
4. Quality assurance plan which are being implemented

PART-'C'

ENCLOSURES:

Bidder has to enclose following documents and has to confirm for the same.

Sr.No.	Particulars	Confirmation
1	2 nos. (Two) of samples for LT Shackle Insulators to be sent with tender	Yes
2	Type test certificate covering all the tests as per Cl. No. 5.2 of Tender specification from NABL accredited/ Govt. approved laboratory	Yes
3	List of Plant and Machinery	Yes
4	List of Testing Equipment	Yes
5	List of Orders pending / executed at least for past Three (03) years for the item offered: (a) With GUVNL and their subsidiary companies (b) With the purchase other then GUVNL and their subsidiary Companies	Yes Yes

PART-'D'

Bidder has to mention below deviation if any, quoting relevant clause of Technical Specification.

Signature & seal of Tenderer