

इंटरनेट

मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 10810-21 (1984): Methods of test for cables, Part 21:
Cold impact test [ETD 9: Power Cables]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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*Indian Standard***METHODS OF TEST FOR CABLES****PART 21 COLD IMPACT TEST****1. Scope**

1.1 Covers a method to determine the resistance to impact or shock of thermoplastic and elastomeric insulation or sheath at low temperature and frost.

1.2 This test is an alternative to cold bend test which is considered impracticable for insulation or sheath whose diameter is larger than 12.5 mm.

2. Significance — Sometimes the cables have to be laid in the area of low temperature climatic conditions or frost. Due to constant exposure of the cable to the low temperature or frost conditions, the insulation or sheath of the cable will become hardened and stiff. However, this is a long term effect. Such hardening or stiffness causes cracking of the insulation or sheath and may lead to the failure of the cable. In order to ascertain the suitability or withstandability of the thermoplastic insulating or sheathing materials at low temperature or frost conditions (when the usage of the cable so warrants), this cold impact test is carried out.

3. Terminology — As given in IS : 1885 (Part 32) + 1971 'Electrotechnical vocabulary: Part 32 Cables, conductors and accessories for electricity supply'.

4. Apparatus

4.1 Refrigerator — Electrically operated and thermostatically controlled cold chamber.

4.2 Thermometer — To monitor the low temperature inside the refrigerator.

4.3 Low Temperature Impact Apparatus — Shall consist of a plain testing anvil and a cylindrical falling hammer. The anvil shall be made of steel about 10 mm thick and shall be about 1 kg in weight. The falling hammer shall be of steel about 200 g in weight and 15 mm in diameter. The spherical impact surface of the hammer should have a radius of curvature of 300 mm.

4.4 Cylindrical Pipe — Having inside diameter approximately 16 mm and length 30 cm.

5. Material — No material other than the test specimen is required for performing this test.

6. Test Specimen

6.1 Core, with conductor in place but all coverings over insulation removed carefully without damaging the insulation. For sheath, specimen from complete cable shall be taken for test. Each test specimen shall be about 10 cm in length.

6.2 Number of Specimens — Two. Additional specimens may also be required (see 8.3).

7. Conditioning — No pre-conditioning of the test specimen is required.

8. Procedure

8.1 The test specimen prepared as described above in 6 together with the testing anvil, cylindrical hammer and cylindrical pipe shall be placed in refrigerator (cold chamber) and cooled in air in refrigerator at the temperature specified in relevant specification for a period not less than 2 hours and not more than 3 hours. The test specimens shall be put into the refrigerator in such a way that they rest on the testing anvil throughout their whole length.

8.2 At the end of this cooling period, each test specimen, whilst still in the refrigerator and at the same temperature, shall be struck once in its centre by the falling hammer dropped from a height of 30 cm through the cylindrical pipe.

8.3 The test specimen, immediately after this cold impact treatment, shall be examined for any cracks or scales visible to the unaided eye.

If either or both of the test specimens fail, the test shall be repeated on four fresh specimens. The results shall be regarded as satisfactory if none of these fails.

IS : 10810 (Part 21) -1984

9. Tabulation of Observations

<i>Test Specimen No.</i>	<i>Cracks Observed (Yes or No)</i>
1.	
2.	
Additional specimens (if any)	
3.	
4.	
5.	
6.	

10. Calculation — No calculation is involved.

11. Report

11.1 Cold Impact Test for Insulation and Sheath:

- a) Cable Type,
- b) Batch No./Lot No., and
- c) Cable No./Drum No.

11.2 Results:

Reference Specification _____

Failures, if any, in the first two specimens: _____

Failures, if any, in the additional specimens if tested: _____

11.3 Conclusion — Specimen meets/does not meet the requirements of the specification.