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"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
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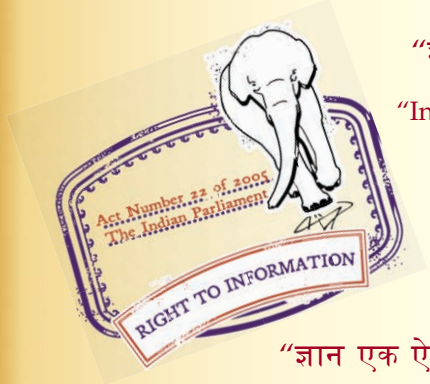
IS 10810-57 (1987): Methods of test for cables, Part 57: Flexing test [ETD 9: Power Cables]



"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"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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Indian Standard (Reaffirmed 2002)

METHODS OF TEST FOR CABLES

PART 57 FLEXING TEST

Power Cables Sectional Committee, ETDC 59; Panel for Methods of Tests for Cables, ETDC 59 : P1 [Ref : Doc : ETDC 59 (2240/57)]

1. Scope — Covers the test procedure to determine the flexibility of flexible cable.

1.1 Flexible cables having conductors with nominal cross-sectional area exceeding 4 mm² and all single core cables are not subjected to this test.

2. Significance — The flexible cables are subjected to frequent flexing in service. This test is done to ascertain the capability of cable to withstand flexing and other mechanical stresses occurring in normal use.

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

4. Apparatus — As shown in Fig. 1. This apparatus has a carrier C supporting two pulleys A and B arranged so that the cable is horizontal between the pulleys. The pulleys have a semi-circular shaped groove for circular cables and a flat groove for flat cables. The carrier makes a backward and forward movement over a distance of 1 m at an approximately constant speed of 0·33 m/s. The mass of the weight for loading the end of the test specimen and the diameter of the pulleys A and B are as given below:

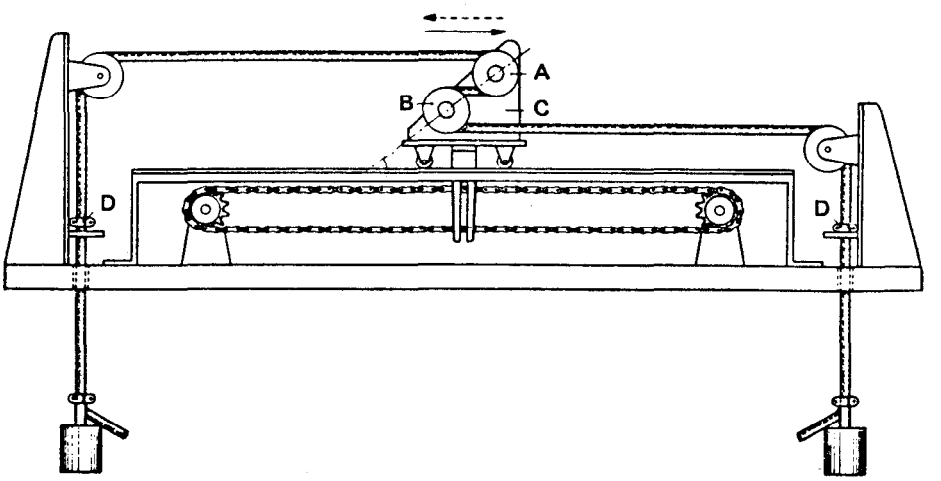

FIG. 1 FLEXING APPARATUS

Type of Cable	*Mass of Weight*	*Diameter of Pulleys*
	kg	mm
Braided cord or light PVC sheathed cords	1·0	80
Ordinary PVC sheathed or tough rubber sheathed cord and ordinary polychloroprene or other equivalent synthetic elastomer sheathed cord with a nominal cross-sectional area of conductors:		
a) Net exceeding 1 mm²	1·0	80
b) 1·5 and 2·5 mm²	1·5	120
Heavy polychloroprene or other equivalent synthetic elastomer sheathed cable with a nominal cross sectional area of conductor:		
a) Not exceeding 2·5 mm²	1·5	120
b) 4 mm²	2·0	200
PVC insulated parallel twin unsheathed cords	1·0	60

The restraining clamps D shall be fixed so that the pull is always applied by the weight from which the carrier is moving away.

Adopted 3 April 1987 Gr 1

BUREAU OF INDIAN STANDARDS
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5. Material — No material other than the test specimen is required.

6. Test Specimen

6.1 A cable sample of approximately 5 m length shall be taken.

6.2 *Number of Specimens* — One.

7. Conditioning — No conditioning is required.

8. Procedure

8.1 The test specimen shall be stretched over the pulleys as shown in Fig. 1, each end being loaded with a weight as given in **4.**

8.2 Each conductor of the test specimen shall be loaded with the current specified below:

Nominal Cross-Sectional Area of Conductor	*Current*
mm^2	A
0·75	9
1	11
1·5	14
2·5	20
4	25

For two-core cables, the voltage between the conductors shall be 240 V (ac). For all other cables having free or more cores, a three-phase ac voltage of about 415 V shall be applied to the three conductors, any additional conductors being connected to neutral. The carrier shall make 15 000 backward and 15 000 forward movements, that is, 30 000 single storkes, during which neither interruption of current not short-circuit between the conductors shall occur.

After this test, the sheath, if any, of cables with three or more cores shall be removed. The cable or cores shall then withstand the (ac) voltage test carried out in accordance with relevant standard on cable, as appropriate, but with a test voltage not exceeding 2 000 volts.

9. Tabulation of Observations

Specimen No.	*Cable Description*	*Mass* kg	*Current* A	*ac Test Voltage* V	*Duration* min	*Observation*

10. Calculation — No calculation is involved.

11. Report

11.1 *Flexing Test*

Cable Type

Cable No./Drum No.

11.2 *Results*

Reference Specification_____

Specimen No.	*Description of Specimen*	*Mass* kg	*Current* A	*ac Test Voltage* V	*Duration* min	*Observation*

11.3 *Conclusion* — The specimen meets/does not meet the requirement of the specification.

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