(PREVIEW)

Indian Standard

CROSSLINKED POLYETHYLENE INSULATED THERMOPLASTIC SHEATHED CABLES — SPECIFICATION

PART 2 FOR WORKING VOLTAGES FROM 3.3 kV UP TO AND INCLUDING 33 kV

1 SCOPE

1.1 This standard (Part 2) covers the requirements of following categories of crosslinked polyethylene insulated and PVC sheathed or polyethylene sheathed cables for single phase or three phase (earthed or unearthed) systems for electricity supply purposes:

a) *Types of Cables*

1) Single-core unscreened, unarmoured (but non-magnetic metallic tape covered);
2) Single-core screened, unarmoured;
3) Single-core armoured (non-magnetic) screened or unscreened; and
4) Three-core armoured, screened or unscreened.

b) *Voltage Grade (U_o/U)*

1) *Earthed systems*: 1.9/3.3 kV, 3.8/6.6 kV, 6.35/11 kV, 12.7/22 kV and 19/33 kV.
2) *Unearthed system:* 3.3/3.3kV and 11/11kV.

NOTES

1 Cables of 6.35/11kV grade (earthed systems) are suitable for use on 6.6/6.6 kV and (unearthed system) also.

2 The cables conforming to this standard may be operated continuously at a power frequency voltage 10 percent higher than rated voltage.

3 Under rule 54 of the Indian Electricity Rules, 1956 in case of high voltage, the permissible variation of declared voltage at the point of commencement of supply is not to vary by more than 6 percent on the higher side or by more than 9 percent on the lower side,

4 Measures taken for achieving longitudinal water tightness shall be as agreed between the purchaser and the supplier.

1.2 These cables are suitable for use where sum of ambient temperature and temperature rise due to load results in conductor temperature not exceeding 90°C under normal operation and 250°C under short-circuit conditions.

1.3 Armoured cables up to 11 kV grade specified in this standard are suitable for use in mines also. However, for such cables, additional requirements have been included, wherever necessary (**4.1.1**, **17.5** and **21.2.1**).

1.4 This standard also covers cables with improved fire performance categories C1 and C2 as given in Annex A. For such cables additional requirements have been included, wherever necessary.

2 REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
1885 (Part 32) : 1993/IEC 50-461 : 1984	Electrotechnical vocabulary: Part 32 Electric cables
3975 : 1999	Mild steel wires, formed wires and tapes for armouring of cables
4905 : 1968	Methods for random sampling
5831 : 1984	PVC insulation and sheath of electric cables
8130 : 1984	Conductors for insulated electric cables and flexible cords
10418 : 1982	Drums for electric cables
10462 (Part 1) : 1983	Fictitious calculation method for determination of dimensions of protective coverings of cables: Part 1 Elastomeric and thermoplastic insulated cables
10810	Methods of test for cables:
(Part 1) : 1984	Annealing test for wires used in conductors
(Part 2) : 1984	Tensile test for aluminium wires
(Part 3) : 1984	Wrapping test for aluminium wires
(Part 5) : 1984	Conductor resistance test
(Part 6) : 1984	Thickness of thermoplastic and elastomeric insulation and sheath
(Part 7) : 1984	Tensile strength and elongation at break of thermoplastic and elastomeric insulation and sheath

IS No.	*Title*
(Part 10) : 1984	Loss of mass test
(Part 11) : 1984	Thermal ageing in air
(Part 12) : 1984	Shrinkage test
(Part 14) : 1984	Heat shock test
(Part 15) : 1984	Hot deformation test
(Part 30) : 1984	Hot set test
(Part 32) : 1984	Carbon content test for polyethylene
(Part 33) : 1984	Water absorption test (gravimetric)
(Part 36) : 1984	Dimensions of armouring material
(Part 37) : 1984	Tensile strength and elongation at break of armouring materials
(Part 38) : 1984	Torsion test on galvanized steel wires for armouring
(Part 39) : 1984	Winding test on galvanized steel strips for armouring
(Part 40) : 1984	Uniformity of zinc coating on steel armour
(Part 41) : 1984	Mass of zinc coating on steel armour
(Part 42) : 1984	Resistivity test of armour wires and strips and conductance test of armour (wires/strips)
(Part 43) : 1984	Insulation resistance
(Part 45) : 1984	High voltage test
(Part 46) : 1984	Partial discharge test
(Part 47) : 1984	Impulse test
(Part 48) : 1984	Dielectric power factor test
(Part 49) : 1984	Heating cycle test
(Part 50) : 1984	Bending test
(Part 53) : 1984	Flammability test
(Part 58) : 1998	Oxygen index test
(Part 59) : 1988	Determination of the amount of halogen acid gas evolved during combustion of polymeric materials taken from cables
(Part 60) : 1988	Thermal stability of PVC insulation and sheath
(Part 61) : 1988	Flame retardant test
(Part 62) : 1993	Fire resistance test for bunched cables
(Part 64) : 2003	Measurement of temperature index