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Communication cables - Specifications for test methods - Part 3-4: Mechanical test methods - Tensile strength, elongation and shrinkage of insulation and sheath

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Kommunikationskabel - Spezifikationen für Prüfverfahren -- Teil 3-4: Mechanische Prüfverfahren - Zugfestigkeit, Dehnung und Schrumpf der Isolierung und des Kabelmantels

Câbles de communication - Spécifications des méthodes d'essai -- Partie 3-4: Méthodes d'essais mécaniques - Résistance à la traction, allongement et rétraction de l'isolant et de la gaine

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Câbles de communication - Spécifications des méthodes d'essai Partie 3-4: Méthodes d'essais mécaniques - Résistance à la traction, allongement et rétraction de l'isolant et de la gaine

Kommunikationskabel - Spezifikationen für Prüfverfahren Teil 3-4: Mechanische Prüfverfahren - Schrumpf der Isolierung

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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CENELEC
European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 46X, Communication cables.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50289-3-4 on 2001-03-01.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2002-04-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2004-04-01

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1 Scope

This Part 3-4 of EN 50289 details the method of test to determine the tensile strength, elongation and shrinkage of insulation and sheath of cables used in analogue and digital communication systems.

It is to be read in conjunction with Part 3-1 of EN 50289, which contains essential provisions for its application.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 50289-3-1	2001	Communication cables - Specifications for test methods -- Part 3-1: Mechanical test methods - General requirements
EN 50290-1-2[1)]		Communication cables - Part 1-2: Definitions
EN 60811-1-1	1995	Insulating and sheathing materials of electric and optical cables - Common test methods -- Part 1-1: General application - Measurement of thickness and overall dimensions - Tests for determining the mechanical properties

3 Definitions

For the purposes of this European Standard the definitions of EN 50290-1-2 apply.

4 Test values

Full test conditions (such as temperature, duration, etc.) and full test requirements are not specified in this standard; it is intended that they should be specified by the standard dealing with the relevant type of material.

5 Applicability

Conditioning values and testing parameters are specified for the most common types of insulating compounds.

6 Pre-conditioning

The test shall be carried out not less than 16 h after the extrusion or cross linking of the insulation compound.

If the test is carried out at ambient temperature, the test pieces shall be kept for at least 3 h at a temperature of 23 °C ± 5 °C.

[1)] At draft stage.

7 Test temperature

Unless otherwise specified, the test shall be carried out at ambient temperature.

8 Elongation

Elongation tests shall be performed in accordance with clause 9 of EN 60811-1-1.

9 Tensile strength

Tensile strength tests shall be performed in accordance with clause 9 of EN 60811-1-1.

10 Shrinkage

10.1 Sampling

10.1.1 Sample length

One sample about 1,5 L in length of each core to be tested shall be taken at least 0,5 m away from each end of the cable length.

L is the length given in the relevant cable standard.

10.1.2 Preparation of test pieces

Within an interval of not more than 5 min from the time of cutting the samples, a test length of L ± 5 mm shall be marked on the middle part of each piece of core. The distance between the marks shall be measured to an accuracy of 0,5 mm. Each test piece shall then be prepared by cutting and removing the insulation from both ends of each sample up to positions between 2 mm and 5 mm away from the marks.

10.2 Procedure

The test pieces shall be supported horizontally in an air oven by the bare ends of conductors or on the surface of a talc bath, to permit free movement of the insulation. They shall be heated at the temperature and for the time specified in the standard for the type of cable.

The test pieces shall then be allowed to cool in air to room temperature and the distance between the two marks on each piece measured again to the nearest 0,5 mm.

10.3 Expression of results

The difference between the marks before the heat treatment and after the heating and cooling shall be recorded as a percentage of the distance between the marks before the treatment.

11 Test report

The test report shall include:

- temperature,
- sample length,
- shrinkage
- elongation,
- tensile strength.