

BS EN 62275:2015



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Cable management systems — Cable ties for electrical installations

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National foreword

This British Standard is the UK implementation of EN 62275:2015. It is derived from IEC 62275:2013. It supersedes BS EN 62275:2009 which is withdrawn.

The CENELEC common modifications have been implemented at the appropriate places in the text. The start and finish of each common modification is indicated in the text by tags **Ⓒ** **Ⓒ**.

The UK participation in its preparation was entrusted to Technical Committee PEL/213, Cable management.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

**Cable management systems - Cable ties for electrical
installations
(IEC 62275:2013 , modified)**

Systèmes de câblage - Colliers pour installations
électriques
(IEC 62275:2013 , modifiée)

Kabelführungssysteme - Kabelbinder für elektrische
Installationen
(IEC 62275:2013 , modifiziert)

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Foreword

This document (EN 62275:2015) consists of the text of IEC 62275:2013 prepared by SC 23A "Cable management systems" of IEC/TC 23 "Electrical accessories", together with the common modifications prepared by CLC/TC 213 "Cable management systems".

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-01-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-01-19

This document supersedes EN 62275:2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 62275:2013 was approved by CENELEC as a European Standard with agreed common modifications.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-6	2007	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	2008
IEC 60695-11-5	2004	Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	EN 60695-11-5	2005
IEC 60216-4-1	2006	Electrical insulating materials - Thermal endurance properties - Part 4-1: Ageing ovens - Single-chamber ovens	EN 60216-4-1	2006
ISO 4892-2	2006	Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps	EN ISO 4892-2	2006
ISO 9227	2012	Corrosion tests in artificial atmospheres - Salt spray tests	EN ISO 9227	2012

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CABLE MANAGEMENT SYSTEMS – CABLE TIES FOR ELECTRICAL INSTALLATIONS

1 Scope

This International Standard specifies requirements for metallic, non-metallic and composite cable ties and their associated fixing devices used for the management and support of wiring systems in electrical installations.

Cable ties and associated fixing devices may also be suitable for other applications and where so used, regard should be taken of any additional requirements.

This standard does not contain requirements that evaluate any electrical insulation properties of the cable tie or mechanical protection of the cables provided by the cable tie.

This standard does not consider the mechanical interface of a fixing device to a solid surface such as a wall or ceiling.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-2-6:2007, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60695-11-5:2004, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*

IEC 60216-4-1:2006, *Electrical insulating materials – Thermal endurance properties – Part 4-1: Ageing ovens – Single-chamber ovens*

ISO 4892-2:2006, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps*

ISO 9227:2012, *Corrosion tests in artificial atmospheres – Salt spray tests*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 cable tie

band or length of material, employing a locking device, used for bundling or tying groups of cables together, securing and/or supporting the cables

Note 1 to entry: Type 1 and Type 2 cable ties are classified in 6.2.2 and 6.2.3.

Note 2 to entry: In some countries, such as Canada and the United States, additional Type classifications are applicable when prequalified moulding materials are used. See UL 62275/CSA C22.2 No. 62275.

3.2

fixing device

component (such as a block or bracket) specifically designed to secure the cable tie to a mounting surface

Note 1 to entry: A cable tie and the fixing device may be manufactured as an integrated component.

3.3

metallic component

component which consists of metal only

3.4

non-metallic component

component which consists of non-metallic material only

3.5

composite component

component comprising both metallic and non-metallic materials

3.6

environmental influence

effect of corrosive substances or solar radiation, etc.

3.7

loop tensile strength

reference mechanical characteristic of a cable tie with its locking mechanism engaged

3.8

locking device

feature of a cable tie for fixing it in a closed position

3.9

low hygroscopic polymer

polymer having the characteristic of not enabling attraction or holding water greater than 1,0 % by weight of the material from the surrounding environment at 23 °C and 50 % relative humidity

Note 1 to entry: Examples of low hygroscopic polymers include: polypropylene, acetal, ethylene tetrafluoroethylene, ethylene chlorotrifluoroethylene, nylon 12, polyetheretherketone.

3.10

equilibrium moisture content

state at which a polymer neither absorbs or releases moisture when exposed to a surrounding environment of 23 °C and 50 % relative humidity

4 General requirements

A cable tie and a fixing device shall withstand the stresses likely to occur during recommended installation practice and perform under the conditions of classifications in Clause 6 as declared by the manufacturer.

Compliance is checked by carrying out all the appropriate specified tests.

5 General notes on tests

5.1 Tests according to this standard are type tests. Unless otherwise specified, tests are carried out with the cable ties and their associated fixing devices, where available, installed as in normal use according to the manufacturer's instructions.

NOTE For guidance in determining product types and sample sets, a family of cable ties or fixing devices having material, construction characteristics, and classifications according to Clause 6, in common, are considered of the same product type. Examples for consideration are material colours, or variable lengths of a cable tie of otherwise similar construction.

The sample sets selected for testing from each product type is representative of the extremes of the range (example: shortest and longest), and the minimum performance level obtained for either extreme is determined to be representative of the entire range.

Consideration is given to minor construction variations that can be determined by inspection to have no effect on performance, when determining product types.

5.2 Unless otherwise specified, tests on non-metallic and composite components shall commence when the samples have been removed from their packaging and then stabilised at a temperature of $(23 \pm 5) ^\circ\text{C}$ and at a relative humidity of $(50 \pm 5) \%$, for a period as indicated in Table 1.

NOTE This stabilisation intends to achieve equilibrium of moisture content for all samples before and after further conditioning and testing.

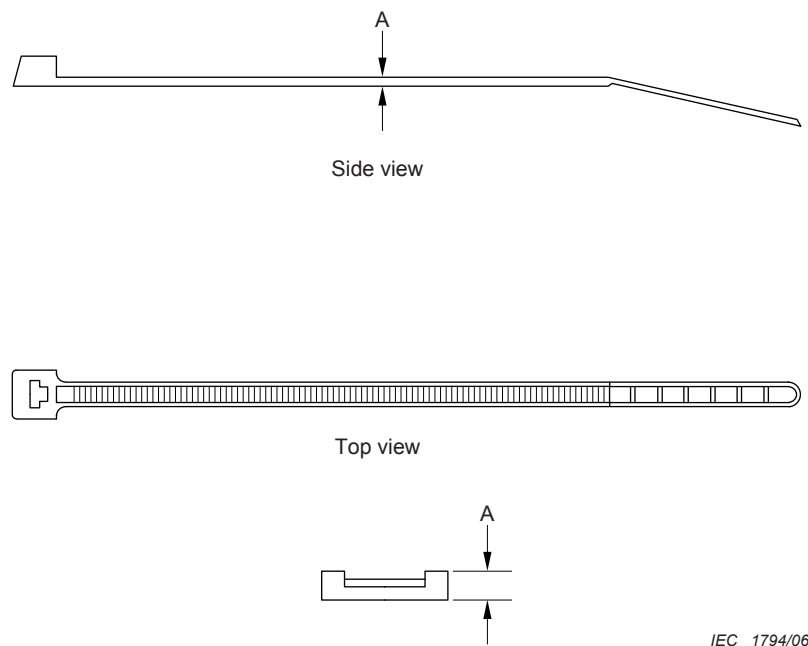
Table 1 – Stabilisation time for samples

Reference thickness (RT) of the device mm	Stabilization time days
$RT \leq 1,2$	7 ± 1
$1,2 < RT \leq 1,4$	21_{-7}^0
$1,4 < RT$	35_{-7}^0
All thicknesses of materials known to have low hygroscopic characteristics	$2 \pm 1/3$

The reference thickness of a cable tie is measured at the midpoint of the strap. The reference thickness of a fixing device shall be the smallest cross section in the area that interfaces with the cable tie or as declared by the manufacturer. See Figure 1.

When the equilibrium moisture content for a material at $(23 \pm 5) ^\circ\text{C}$ and $(50 \pm 5) \%$ relative humidity is determined through a method agreed to by the manufacturer and the testing laboratory, the stabilisation time in Table 1 may be reduced when all of the following conditions are met:

- the product's moisture content in the as-received condition and after each appropriate conditioning is measured using a calibrated moisture analyzer device;
- the samples are subjected to exposure to a constant temperature not exceeding $50 ^\circ\text{C}$ and a relative humidity not exceeding 80% ; and
- the product's equilibrium moisture content at $(23 \pm 5) ^\circ\text{C}$ and $(50 \pm 5) \%$ relative humidity is verified using a calibrated moisture analyzer device. This verification process is repeated until equilibrium is determined.



Key

A Reference thickness of cable tie

Figure 1 – Reference thickness for cable ties

5.3 Unless otherwise specified, the tests shall be carried out at an ambient temperature of $(23 \pm 5) ^\circ\text{C}$ and with a relative humidity of between 40 % and 60 %.

5.4 Unless otherwise specified, three new samples are submitted to the tests and the requirements are satisfied if all the tests are met. If only one of the samples does not satisfy a test due to an assembly or manufacturing fault, that test and any preceding one which may have influenced the results of the test shall be repeated; the tests which follow shall be made in the required sequence on another full set of samples, all of which shall comply with the requirements.

NOTE The applicant, when submitting the first set of samples, can also submit an additional set of samples which may be necessary if one sample fails. The test station will then without further request test the additional set of samples and will reject only if a further failure occurs. If the additional set of samples is not submitted at the same time, a failure of one sample will entail a rejection.

5.5 When toxic or hazardous processes are used, due regard shall be taken of the safety of persons within the test area.

5.6 Unless otherwise specified, the cross-head speed of a tensile machine used during the tests shall be $(25 \pm 2,5) \text{ mm/min}$.

5.7 Where required for heat ageing, a full draft circulating-air oven as specified in IEC 60216-4-1:2006 shall be used. A portion of the air shall be allowed to re-circulate and a substantial amount of air shall be admitted continuously to maintain the normal air content surrounding the samples. The oven shall be adjusted to achieve more than 5 complete fresh-air changes per hour.

5.8 A fixing device that is integral to a cable tie shall comply with the requirements for both the fixing device and the cable tie. The integral assembly shall be classified according to 6.2.2 or 6.2.3 and subjected to the conditionings for the cable tie prior to conducting the mechanical strength test for the fixing device according to 9.7.