IEC 62275

Edition 4.0 2022-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Cable management systems – Cable ties for electrical installations

Systèmes de câblage – Colliers pour installations électriques



IEC 62275:2022-11(en-fr)



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IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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CABLE MANAGEMENT SYSTEMS – CABLE TIES FOR ELECTRICAL INSTALLATIONS

FOREWORD

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IEC 62275 has been prepared by subcommittee 23A: Cable management systems, of IEC technical committee 23: Electrical accessories. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2018. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) scope clarification,
b) new definitions,
c) deletion of the exception for the stabilization of the moisture content,
d) possibility to carry out tensile strength tests with dead weights,
e) differentiation of rubber and acrylic adhesive fixings,
f) clarification for mechanical testing of integral devices,
g) clarifications on Table 6,
h) clarifications in 9.1,

i) the minimum installation temperature test for cable ties is carried out only when the declared minimum temperature is lower than 0 °C,

j) a requirement that metallic cable ties be classified according to 6.2.3,

k) definition of colours to be tested for contribution to fire,

l) addition of a "some countries" note in Clause 10,

m) clarification of the mounting of fixing devices in the resistance to ultraviolet light test,

n) clarification on the testing of integral devices in the resistance to ultraviolet light test.

The text of this International Standard is based on the following documents:

Draft	Report on voting
23A/1025/FDIS	23A/1029/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The following differing practices of a less permanent nature exist in the countries indicated below.

– 6.2.2: Additional type classifications are applicable when pre-qualified moulding materials are used (Canada, USA).

– 6.2.3: Additional type classifications are applicable when pre-qualified moulding materials are used (Canada, USA).

– 7.3: Some marking information is required to be placed on the packaging (Canada, Russia, USA).

In this document, the following print types are used:

– Requirements proper: in roman type.

– *Test specifications: in italic type*.

– Notes: in smaller roman type.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

CABLE MANAGEMENT SYSTEMS – CABLE TIES FOR ELECTRICAL INSTALLATIONS

1 Scope

This document specifies requirements for metallic, non-metallic and composite cable ties and their associated fixing devices as a means used for managing or securing the wiring systems in electrical installations. Cable ties and associated fixing devices can also be suitable for other applications, such as support of wiring systems, and where so used, additional requirements can apply.

This document 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 document contains requirements for the mechanical interface of an adhesive fixing device to a solid surface. It does not consider the mechanical behaviour of the solid surface in itself.

This document does not consider the mechanical interface, for example the mounting screw, of a fixing device other than adhesive to a solid surface.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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 60216-4-1:2006, *Electrical insulating materials – Thermal endurance properties – Part 4-1: Ageing ovens – Single-chamber ovens*

IEC 60695-11-5:2016, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*

ISO 4892-2:2013, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps*
ISO 4892-2:2013/AMD1:2021

ISO 9227:2017, *Corrosion tests in artificial atmospheres – Salt spray tests*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

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

3.3
metallic component
component that consists of metal only

Note 1 to entry: A metallic cable tie having a thin non-metallic or organic coating, where the coating does not contribute to the determination of the loop tensile strength, is considered a metallic component. In case of doubt, "as-received condition" tests with and without coating can be carried out.

3.4
non-metallic component
component that consists of non-metallic material only

3.5
composite component
component comprising both metallic and non-metallic materials where both metallic and non-metallic materials contribute to the determination of the loop tensile strength

3.6
environmental influence
effect of environmental hazards such as 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 nor releases moisture when exposed to a surrounding environment of 23 °C and 50 % relative humidity

3.11
integral device
single component, as produced, incorporating a cable tie and a fixing device that are not separable

3.12
adhesive fixing device
fixing device provided with an adhesive tape specifically designed to secure the cable tie to a mounting surface

3.13
type test
conformity test made on one or more items representative of the production

[SOURCE: IEC 60050-151:2001, 151-16-16]

3.14
bundle
collection of wires or cables gathered or tied together

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.

NOTE Annex A details the compliance checks to be carried out for cable ties and fixing devices currently complying with IEC 62275:2018 in order to comply with IEC 62275:2022, Edition 4 (i.e., this document).

5 General notes on tests

5.1 Tests according to this document 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.

Unless otherwise specified, requirements and tests for fixing devices also apply to adhesive fixing devices.

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 identical generic material description, 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 considered 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 stabilized at a temperature of (23 ± 5) °C and at a relative humidity of (50 ± 5) %, for a period as indicated in Table 1.

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