

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Heating cables with a rated voltage up to and including 300/500 V for comfort heating and prevention of ice formation

Câbles chauffants de tension assignée jusques et y compris 300 V/500 V pour le chauffage des locaux et la protection contre la formation de glace



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HEATING CABLES WITH A RATED VOLTAGE UP TO AND INCLUDING 300/500 V FOR COMFORT HEATING AND PREVENTION OF ICE FORMATION

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IEC 60800 has been prepared by IEC technical committee 20: Electric cables. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2009. This edition constitutes a technical revision.

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

- a) modification of the title: "up to and including", has been introduced;
- b) update of IEC 60811 references;
- c) introduction of a test for mechanical properties of sheaths after the water immersion and temperature cycling test;
- d) introduction of a weathering and UV resistance test according to ISO 4892-2:2013, Annex A.

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

Draft	Report on voting
20/1972/FDIS	20/1991/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/standardsdev/publications.

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- withdrawn,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

INTRODUCTION

This document is intended to provide a comprehensive overview of the essential requirements and testing appropriate to electrical resistance heating cables used for comfort heating and prevention of ice formation. While some of this work already exists in national standards or international standards, this document has collated much of this existing work.

This document provides a means to verify the electrical, thermal and mechanical durability of resistive heating cables, so that in normal use their performance is without danger to the user or surroundings. Compliance is checked by carrying out all the tests specified in this document.

HEATING CABLES WITH A RATED VOLTAGE UP TO AND INCLUDING 300/500 V FOR COMFORT HEATING AND PREVENTION OF ICE FORMATION

1 Scope

This document is applicable to, and specifies requirements for resistive heating cables for low temperature applications such as comfort heating and the prevention of ice formation. These heating cables and heating cable sets can comprise either factory assembled or field (work-site) assembled units, and are heating cables assembled in accordance with manufacturer's instructions.

Bare conductors and protected conductors to be supplied at voltages equal to, or less than, 50 V are excluded from the scope of this document.

Typical applications include, but are not limited to:

- surface heating installed in or under surfaces;
- direct and storage heating;
- snow melting and frost protection of roofs, gutters, pipes, etc.

Electrical resistance trace heating systems for industrial and commercial applications are specified in the IEC 62395 series [1]¹ and for explosive atmospheres applications in the IEC/IEEE 60079-30 series [2], as are mineral insulated heating cables.

Applications in which the sheath temperature exceeds 100 °C are outside the scope of this document.

The object of this document is to ensure that electrical resistance heating cables operate safely under their normal defined conditions of use. This is achieved by:

- employing heating cables of the appropriate construction that meet the test criteria detailed in this document;
- including, for heating cables with an electrical protective component, a metallic braid, concentric wires or sheath, or other suitable electrically conductive material for protective purposes in case of fault;
- ensuring that the heating cables operate at safe temperatures with respect to the materials used in the construction of the cables and their installations according to national regulations.

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 60050-461, *International Electrotechnical Vocabulary (IEV) – Part 461: Electric cables* (available at <http://www.electropedia.org>)

¹ Numbers in square brackets refer to the bibliography.