



Shielded power cable for commercial and industrial applications, 5–46 kV



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Preface

This is the third edition of CSA C68.10, *Shielded power cable for commercial and industrial applications, 5–46 kV*. It supersedes the previous editions published in 2014 and 2008.

The first edition of this Standard replaced the requirements for shielded power cable in commercial and industrial installations specified in CAN/CSA-C68.3, *Shielded and concentric neutral power cables rated 5–46 kV*. A related standard in the CSA C68 series, CSA C68.5, specifies the requirements for application of shielded and concentric neutral cables used by electric utilities.

This Standard was originally adapted from NEMA WC 74/ICEA S-93-639. CSA Group gratefully acknowledges the co-operation of the Insulated Cable Engineers Association (ICEA) and the contribution of its members.

The main revisions incorporated in this edition include the following:

- a) updated reference publications (Clause [2](#));
- b) removed “filled or unfilled” from the XLPE and TRXLPE descriptions (Clause [6.1.1](#));
- c) clarified on the four classifications of EPR (Clause [6.1.1](#));
- d) deleted reference to test methods in CSA C22.2 No. 0.3 and replaced with CSA C22.2 No. 2556;
- e) added additional marking requirements for jacketed cables (Clause [12.1](#)); and
- f) removed “Class III” classification for 105C rated XLPE and TRXLPE and clarified temperature ratings for EPR classes I, II, III and IV (Tables [4](#) and [10](#)).

Funding in support of the consensus process of this Standard was provided by the following funders, whose assistance is acknowledged with thanks: Canadian Electricity Association (CEA), S&C Electric Canada Ltd., Fortis BC, Fortis Alberta, Maritime Electric, Newfoundland Hydro, Newfoundland Power, Schneider Electric Canada Inc., and IFD Corporation.

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was prepared by the Subcommittee on Shielded and Concentric Neutral Power Cables Rated 5–46 kV, under the jurisdiction of the Technical Committee on Insulated Power Cable and the Strategic Steering Committee on Power Engineering and Electromagnetic Compatibility, and has been formally approved by the Technical Committee.

This standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

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CSA C68.10:20

Shielded power cable for commercial and industrial applications, 5–46 kV

1 Scope

1.1

This Standard applies to the materials, construction, and testing of one- to four-conductor cross-linked polyethylene and ethylene propylene rubber-insulated shielded power cables, rated 5–46 kV, that are used for the distribution of electrical energy under normal conditions of installation and service in indoor, outdoor, aerial, underground, or underwater locations.

1.2

This Standard specifies requirements for conductors, insulation, and protective coverings as well as for the construction and dimensions of most standard types of shielded cable.

1.3

This Standard does not preclude the use of optional components such as polymeric layers for additional mechanical protection, moisture-impervious laminated sheath, individually covered steel wire armour, or optical fibres, provided that the components meet the performance requirements of this Standard.

Test procedures for these optional components are not included in this Standard.

1.4

The values given in SI units are the units of record for the purposes of this Standard. Where values are given in parentheses they are for information and comparison only.

1.5

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.