

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



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Revision History

C68.10-14, Shielded power cable for commercial and industrial applications, 5-46 kV

Errata — June 2015	Revision symbol (in margin)
Clauses 11.3.2 , 11.3.3 , and 14.3.2 Table 46	Δ

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CSA C68.10:14
***Shielded power cable for
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*Published in August 2014 by CSA Group
A not-for-profit private sector organization
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ISBN 978-1-77139-671-4

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Technical Committee on Insulated Power Cable

E.H. Wiebe	Innovative Solutions Engineering Inc, Winnipeg, Manitoba <i>Category: General Interest</i>	<i>Chair</i>
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A. Norris	BC Hydro, Burnaby, British Columbia <i>Category: User Interest</i>	
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R. Pawluk	United Wire & Cable Incorporated, Richmond Hill, Ontario <i>Category: Producer Interest</i>	

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W.S. Temple	General Cable Industries, Inc., Highland Heights, Kentucky, USA <i>Category: Producer Interest</i>	
W. van Halderen	Canadian Electricity Association (CEA), Ottawa, Ontario	<i>Associate</i>
R. Williamson	Aetna Insulated Wire Company, Virginia Beach, Virginia, USA <i>Category: Producer Interest</i>	
J.K. O’Neill	CSA Group, Mississauga, Ontario	<i>Project Manager</i>

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J.A. McFadgen	Nova Scotia Power Inc., Halifax, Nova Scotia
M. Moradi	Prysmian Power Cables and Systems Canada, Richmond Hill, Ontario
N. Moubed	Anixter Canada Inc., Mississauga, Ontario
A. Norris	BC Hydro, Burnaby, British Columbia
K.M. Nuckles	Southwire Company, Carrollton, Georgia, USA
R. Pawluk	United Wire & Cable Incorporated, Richmond Hill, Ontario
V. Rowe	Marex Canada Limited, Nanaimo, British Columbia
C. Rueck	Southwire Canada, Burnaby, British Columbia
R. Szilagyi	Nexans Canada Inc., Weyburn, Saskatchewan
W.S. Temple	General Cable Industries, Inc., Highland Heights, Kentucky, USA
W. van Halderen	Canadian Electricity Association (CEA), Ottawa, Ontario

E.H. Wiebe	Innovative Solutions Engineering Inc, Winnipeg, Manitoba	
R. Williamson	Aetna Insulated Wire Company, Virginia Beach, Virginia, USA	
J.K. O’Neill	CSA Group, Mississauga, Ontario	<i>Project Manager</i>

Preface

This is the second edition of CSA C68.10, *Shielded power cable for commercial and industrial applications, 5–46 kV*. It supersedes the previous edition published in 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) new definitions (e.g., thermoset, thermoplastic, and water blocking component, Clause [3](#));
- c) clarification of bonding conductors in multiple-conductor cable (Clause [11.3.3](#));
- d) revised sample preparation criteria for air oven and oil immersion testing (Clauses [13.4.9.2](#) and [13.4.9.3](#));
- e) revised insulation resistance test (Clause [14.2.2](#));
- f) updated wording for the longitudinal water penetration test in Clause [14.6.2](#);
- g) increased insulation thickness and ac test voltage for the 133% insulation level of cable rated less than or equal to 5 kV (Tables [8](#) and [9](#)); and
- h) general updating of terminology to be consistent with updates made to CSA C68.5.

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.

Notes:

- 1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
- 2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
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- d) *rationale for the change.*

CSA C68.10:14

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. The values given in parentheses are for information and comparison only.

1.5

In CSA Standards, “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.