



**CSA
Group**

C22.2 No. 308-18
National Standard of Canada



Cord reels and multi-outlet assemblies

Currently in preview, click buy full version



Standards Council of Canada
Conseil canadien des normes

Legal Notice for Standards

Canadian Standards Association (operating as “CSA Group”) develops standards through a consensus standards development process approved by the Standards Council of Canada. This process brings together volunteers representing varied viewpoints and interests to achieve consensus and develop a standard. Although CSA Group administers the process and establishes rules to promote fairness in achieving consensus, it does not independently test, evaluate, or verify the content of standards.

Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document’s fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party’s intellectual property rights. CSA Group does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA Group makes no representations or warranties regarding this document’s compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA GROUP, ITS VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF CSA GROUP HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA Group is not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its contents, and CSA Group accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA Group is a private not-for-profit company that publishes voluntary standards and related documents. CSA Group has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

Intellectual property rights and ownership

As between CSA Group and the users of this document (whether it be in printed or electronic form), CSA Group is the owner, or the authorized licensee, of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. Without limitation, the unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA Group’s and/or others’ intellectual property and may give rise to a right in CSA Group and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by treaty or by law, CSA Group reserves all intellectual property rights in this document.

Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA Group shall not be held responsible for identifying any or all such patent rights. Users of this standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

Authorized use of this document

This document is being provided by CSA Group for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form:

- load this document onto a computer for the sole purpose of reviewing it;
- search and browse this document; and
- print this document if it is in PDF form.

Limited copies of this document in print or paper form may be distributed only to persons who are authorized by CSA Group to have such copies, and only if this Legal Notice appears on each such copy.

In addition, users may not and may not permit others to

- alter this document in any way, or remove this Legal Notice from the attached standard;
- sell this document without authorization from CSA Group; or
- make an electronic copy of this document.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents hereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.



Standards Update Service

C22.2 No. 308-18

April 2018

Title: *Cord reels and multi-outlet assemblies*

To register for e-mail notification about any updates to this publication

- go to shop.csa.ca
- click on **CSA Update Service**

The **List ID** that you will need to register for updates to this publication is **24250.2**

If you require assistance, please e-mail techsupport@csagroup.org or call 416-747-2233.

Visit CSA Group's policy on privacy at www.csagroup.org/legal to find out how we protect your personal information.

Canadian Standards Association (operating as “CSA Group”), under whose auspices this National Standard has been produced, was chartered in 1919 and accredited by the Standards Council of Canada to the National Standards system in 1973. It is a not-for-profit, nonstatutory, voluntary membership association engaged in standards development and certification activities.

CSA Group standards reflect a national consensus of producers and users — including manufacturers, consumers, retailers, unions and professional organizations, and governmental agencies. The standards are used widely by industry and commerce and often adopted by municipal, provincial, and federal governments in their regulations, particularly in the fields of health, safety, building and construction, and the environment.

Individuals, companies, and associations across Canada indicate their support for CSA Group’s standards development by volunteering their time and skills to Committee work and supporting CSA Group’s objectives through sustaining memberships. The more than 7000 committee volunteers and the 2000 sustaining memberships together form CSA Group’s total membership from which its Directors are chosen. Sustaining memberships represent a major source of income for CSA Group’s standards development activities.

CSA Group offers certification and testing services in support of and as an extension to its standards development activities. To ensure the integrity of its certification process, CSA Group regularly and continually audits and inspects products that bear the CSA Group Mark.

In addition to its head office and laboratory complex in Toronto, CSA Group has regional branch offices in major centres across Canada and inspection and testing agencies in eight countries. Since 1919, CSA Group has developed the necessary expertise to meet its corporate mission: CSA Group is an independent service organization whose mission is to provide an open and effective forum for activities facilitating the exchange of goods and services through the use of standards, certification and related services to meet national and international needs.

For further information on CSA Group services, write to
CSA Group
178 Rexdale Boulevard
Toronto, Ontario, M9W 1R3
Canada



Standards Council of Canada
Conseil canadien des normes

A National Standard of Canada is a standard developed by a Standards Council of Canada (SCC) accredited Standards Development Organization, in compliance with requirements and guidance set out by SCC. More information on National Standards of Canada can be found at www.scc.ca.

SCC is a Crown corporation within the portfolio of Innovation, Science and Economic Development (ISED) Canada. With the goal of enhancing Canada's economic competitiveness and social well-being, SCC leads and facilitates the development and use of national and international standards. SCC also coordinates Canadian participation in standards development, and identifies strategies to advance Canadian standardization efforts.

Accreditation services are provided by SCC to various customers, including product certifiers, testing laboratories, and standards development organizations. A list of SCC programs and accredited bodies is publicly available at www.scc.ca.

Standards Council of Canada
600-55 Metcalfe Street
Ottawa, Ontario, K1P 6L5
Canada

Cette Norme Nationale du Canada n'est disponible qu'en anglais.

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 to judge its suitability for their particular purpose.

®A trademark of the Canadian Standards Association, operating as “CSA Group”

National Standard of Canada

C22.2 No. 308-18
***Cord reels and multi-outlet
assemblies***



®A trademark of the Canadian Standards Association,
operating as "CSA Group."



Published in April 2018 by CSA Group
A not-for-profit private sector organization
178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3

To purchase standards and related publications, visit our Online Store at shop.csa.ca
or call toll-free 1-800-463-6727 or 416-747-4044.

ICS 29.120.20
ISBN 978-1-4883-1376-9

© 2018 Canadian Standards Association
All rights reserved. No part of this publication may be reproduced in any form whatsoever
without the prior permission of the publisher.

Contents

Technical Committee on Wiring Products	4
Integrated Committee on Wiring Devices (ICWD)	6
Preface	9
1 Scope	10
2 Reference publications	11
3 Definitions	12
4 Cord reels and cord set storage winders	14
4.1 Construction	14
4.1.1 General	14
4.1.2 Enclosure	14
4.1.3 Mounting	16
4.1.4 Spacings for commercial/industrial cord reels	16
4.2 Marking	16
4.3 Tests	17
4.3.1 General	17
4.3.2 Endurance (cord reel)	17
4.3.3 Heating (cord reel)	17
4.3.4 Abnormal heating (cord reel)	18
4.3.5 Dielectric strength	18
4.3.6 Endurance (extension cord set storage winder)	18
4.3.7 Cord reels, switches, or other intermediate devices intended for use in other than dry locations	19
5 Cord-connected, multiple receptacle extension boxes	19
5.1 Construction	19
5.2 Enclosures	21
5.3 Metallic enclosures	22
5.3.1 General	22
5.3.2 Protection against rusting	22
5.3.3 Bonding of the accessible metal parts	22
5.4 Non-metallic enclosures and insulating materials	22
5.4.1 Non-metallic enclosures	22
5.4.2 Insulating materials	23
5.5 Temporary mounting means	23
5.6 Receptacles	24
5.7 Spacings	24
5.7.1 General	24
5.7.2 Requirements — Standards	24
5.7.3 Insulating barrier or liner — Sole part	24
5.7.4 Insulating barrier or liner separation — Additional to air space	25
5.7.5 Fibre (or similar material) insulating barriers	25

5.7.6	Spacings for printed wiring boards	25
5.8	Power supply cords	25
5.9	Switches	26
5.10	Clock-operated switches, solid state lighting controls, photo cells, etc.	26
5.11	Overcurrent protection	26
5.12	Printed wiring boards	26
6	Outdoor multiple receptacle extension boxes	27
6.1	General	27
6.2	Sealing compounds	27
6.3	Covers and hoods	27
6.4	Gaskets	28
6.4.1	Compression set	28
6.4.2	Hardness	28
6.4.3	Flammability	28
6.4.4	Dielectric voltage-withstand (gasket)	28
6.4.5	Insulation resistance (gasket)	29
6.4.6	Gasket test	29
6.4.7	Rain and sprinkler tests	29
7	Marking	30
8	Tests	30
8.1	General	30
8.2	Impact test for cord-connected, multiple receptacle extension boxes (power bars) having a nonmetallic enclosure	31
8.3	Dielectric strength	31
8.4	Multiple receptacle extension boxes with surge suppression	31
8.5	Wiring devices incorporating components intended for surge suppression and/or filtering of connected loads	31
8.6	Temperature test	31
8.7	Leakage current test	32
8.8	Rust resistance	32
8.9	Blade pull at elevated temperature	32
8.10	Paint adhesion	32
8.11	Rain	33
8.12	Sprinkler	33
8.13	Dielectric	33
8.14	Leakage current	34
8.14.1	General	34
8.14.2	Accessible conductive surfaces	34
8.14.3	Nonmetallic conductive surfaces	34
8.14.4	Measurement circuit	34
8.14.5	Testing condition	34
8.15	Mould stress relief test	34
8.16	Sealing compounds test	35
8.17	Resistance to ultraviolet light and water test (for outdoor use only)	35
8.18	Water absorption test (for outdoor use only)	36
8.19	Compression test	36

8.20	Cold impact test (for outdoor only)	36
8.21	Cycling	37
8.22	Gasket compression set test	37
8.23	Gasket hardness test	37
8.24	Gasket flammability test	37
8.25	Gasket dielectric voltage-withstand test	37
8.26	Gasket insulation resistance test	38
8.27	Gasket (closed and open cell constructions only)	38
8.27.1	General	38
8.27.2	Deformation at room temperature	38
8.27.3	Deformation after aging in an air oven	38
8.27.4	Impact and deformation	38
8.28	Adequacy of mounting means test	38
8.29	Strain relief	39
8.30	Low temperature insertion test (for outdoor use only)	39
8.31	Blade security	39

9 Hospital grade power bars 40

9.1	Construction	40
9.1.1	Enclosure	40
9.1.2	Bonding terminal or post	40
9.1.3	Attachment plug	40
9.1.4	Flexible supply cord	41
9.1.5	Receptacles	41
9.1.6	Overcurrent protective device	41
9.1.7	Internal wiring	41
9.1.8	Supply cord polarity — Three-conductor cords	41
9.2	Marking	41
9.3	Tests	42
9.3.1	General	42
9.3.2	Limited short circuit	42
9.3.3	Ground resistance	42
9.3.4	Bonding impedance	42
9.3.5	Mold stress relief — Non-metallic enclosures	43
9.3.6	Impact — Non-metallic enclosures	43
9.3.7	Deflection	43

Technical Committee on Wiring Products

P. Desilets	Leviton Manufacturing of Canada Limited, Pointe-Claire, Quebec <i>Category: Producer Interest</i>	<i>Chair</i>
T. Simmons	British Columbia Institute of Technology, Burnaby, British Columbia <i>Category: General Interest</i>	<i>Vice-Chair</i>
W.J. Burr	Burr and Associates, Campbell River, British Columbia <i>Category: User Interest</i>	
C. Davis	Electro Cables Incorporated, Trenton, Ontario <i>Category: Producer Interest</i>	
S.W. Douglas	International Association of Electrical Inspectors, Toronto, Ontario <i>Category: General Interest</i>	
D. Drysdale	Nexans Canada Inc, Milton, Ontario <i>Category: Producer Interest</i>	
R.W. Horner	Atkore International (Allied Tube & Conduit Corporation), Harvey, Illinois, USA <i>Category: Producer Interest</i>	
J. Imlah	Imlah Electrical Consulting, Alpha, Oregon, USA <i>Category: User Interest</i>	
R.J. Kelly	Government of Nunavut-Dept of Community & Government Services, Iqaluit, Nunavut <i>Category: Regulatory Authority</i>	
M. Martminy	Régie du bâtiment du Québec, Québec, Quebec <i>Category: Regulatory Authority</i>	

T. Olechna	Electrical Safety Authority, Mississauga, Ontario <i>Category: Regulatory Authority</i>
K.L. Rodel	Hubbell Canada ULC, Pickering, Ontario <i>Category: Producer Interest</i>
A.Z. Tsisserev	AES Engineering, Vancouver, British Columbia <i>Category: General Interest</i>
J. Turner	Swansea Consulting, Toronto, Ontario <i>Category: User Interest</i>
L. Letea	CSA Group, Toronto, Ontario <i>Project Manager</i>

Integrated Committee on Wiring Devices (ICWD)

K.L. Rodel	Hubbell Canada ULC, Pickering, Ontario	<i>Chair</i>
A.F. Aljabri	Siemens Canada Limited, Brampton, Ontario	
B. Arguirova	Morrison Hershfield Limited, Burnaby, British Columbia	
N. Baird	EGS Electrical Group Canada Ltd., Elmira, Ontario	
G. Benjamin	Thomas & Betts Limited, Dorval, Quebec	
D.M. Berlin	Intermatic Incorporated, Spring Grove, Illinois, USA	
D. Carson	All Fired Up! Ltd., Milton, Ontario	
P. Desilets	Leviton Manufacturing of Canada Limited, Pointe-Claire, Quebec	
J.S. Frederic	Underwriters Laboratories Inc., Melville, New York, USA	
T. George	Omron Management Center of America, Hoffman Estates, Illinois, USA	
J.A. Gibson	TriVar Inc., Brampton, Ontario	
T. Hamden	CSA Group, Toronto, Ontario	
R. Haring	Philips Lighting North America Corporation, Rosemont, Illinois, USA	

W. Hartill	2D2C, Inc, Kitchener, Ontario
C.M. Henville	Toronto, Ontario
R. Hopkins	Infrastructure Health and Safety Association, Mississauga, Ontario
T. Hum	Leviton Manufacturing of Canada Limited, Pointe-Claire, Quebec
T. Jackson	Wieland Electric, Lewiston, Maine, USA
D.H. Kendall	Thomas & Betts Corporation, Memphis, Tennessee, USA
D.J. Kissane	Pass & Seymour Inc., Syracuse, New York, USA
T. Kranendonk	Brantford, Ontario
C.S. Kurten	Underwriters Laboratories Inc., Melville, New York, USA
J. Louie	General Electric Company, Cleveland, Ohio, USA
D.L. Lutz	Hubbell Incorporated Wiring Device Division, Shelton, Connecticut, USA
F. Magisano	Hubbell Canada ULC, Pickering, Ontario
A. Marrero	Euroloft Inc, Woodbridge, Ontario
E. Mendoza	Philips Lighting North America Corporation, Rosemont, Illinois, USA
S. Mermillod	IPEX Management Inc, Verdun, Quebec

A. Mokrytskiy	Southwire Co., Carrollton, Georgia, USA	
W. Molto	MM Plastic (Mfg.) Company Inc., Mississauga, Ontario	
J. Perry	Brampton, Ontario	
S. Scott	North American Pipe Corporation, a Westlake Chemical Company, Woodbridge, Ontario	
R. Spehalski	Lutron Electronics Company Inc., Coopersburg, Pennsylvania, USA	
L. Letea	CSA Group, Toronto, Ontario	<i>Project Manager</i>

Preface

This is the second edition of CSA C22.2 No. 308, *Cord reels and multi-outlet assemblies*. It supersedes the previous edition published in 2014. It is one of a series of Standards issued under Part II of the *Canadian Electrical Code*.

The main change in this new edition is the incorporation of CSA TIL A-32 into the Standard. CSA TIL A-32 covers the requirements for outdoor, multiple receptacle extension boxes.

This Standard was prepared by the Integrated Committee on Wiring Devices (ICWD), under the jurisdiction of the Technical Committee on Wiring Products and the Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the Technical Committee.

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

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.

Interpretations: The Strategic Steering Committee on Requirements for Electrical Safety has provided the following direction for the interpretation of standards under its jurisdiction: “The literal text shall be used in judging compliance of products with the safety requirements of this Standard. When the literal text cannot be applied to the product, such as for new materials or construction, and when a relevant CSA committee interpretation has not already been published, CSA Group's procedures for interpretation shall be followed to determine the intended safety principle.”

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.*
- 3) *This Standard was developed by consensus, which is defined by CSA Policy governing standardization — Code of good practice for standardization as “substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity”. It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
- 4) *To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org and include “Request for interpretation” in the subject line:*
 - a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
 - b) *provide an explanation of circumstances surrounding the actual field condition; and*
 - c) *where possible, phrase the request in such a way that a specific “yes” or “no” answer will address the issue.*

Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are available on the Current Standards Activities page at standardsactivities.csa.ca.
- 5) *This Standard is subject to review within five years from the date of publication. Suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include “Proposal for change” in the subject line:*
 - a) *Standard designation (number);*
 - b) *relevant clause, table, and/or figure number;*
 - c) *wording of the proposed change; and*
 - d) *rationale for the change.*

C22.2 No. 308-18

Cord reels and multi-outlet assemblies

1 Scope

1.1

This Standard applies to the following products rated at 600 V and less, and designed to be used in non-hazardous locations in accordance with the Rules of CSA C22.1, *Canadian Electrical Code, Part I*:

- a) cord reels for general use and special use cord reels intended to be mounted on or in utilization equipment such as appliances, portable luminaires, extension cord set storage winders, etc.;
- b) cord-connected, multiple receptacle extension boxes intended to provide a convenient supply of power to portable appliances, tools, etc.;
- c) hospital grade power bars rated 15 A, 125 V;
- d) outdoor, cord-connected, multi-receptacle extension boxes intended for mounting on yard stakes or other surfaces to provide a convenient supply of power to portable appliances, tools, garden lighting, etc. They are intended to supply power in non-commercial, non-industrial, and non-hazardous environments and are intended to be stored in dry/indoor locations when not in use. They are limited to 125 Vac 15 A output; and
- e) commercial/industrial use cord reels.

1.2

The requirements of this Standard are to be used in conjunction with CSA C22.2 No. 21 and CSA C22.2 No. 42.

1.3

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.

1.4

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.