CSA/ANSI C22.2 No. 298:21

National Standard of Canada
American National Standard

High voltage couplers

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 licence 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 format.

Limited copies of this document in printed 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 thereof, 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

CSA/ANSI C22.2 No. 298:21
August 2021

Title: *High voltage couplers*

To register for e-mail notification about any updates to this publication
- go to **www.csagroup.org/store/**
- click on **Product Updates**

The **List ID** that you will need to register for updates to this publication is **2438[illegible]**

If you require assistance, please e-mail **techsupport@csagroup.org** or call 4[illegible]-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.

More than 10 000 members indicate their support for CSA Group's standards development by volunteering their time and skills to Committee work.

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 fourteen 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

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.

CSA Group

The 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.

More than 10 000 members indicate their support for CSA Group's standards development by volunteering their time and skills to Committee work.

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 fourteen 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,
Canada M9W 1R3

American National Standards Institute

The American National Standards Institute (ANSI), Inc. is the nationally recognized coordinator of voluntary standards development in the United States through which voluntary organizations, representing virtually every technical discipline and every facet of trade and commerce, organized labor and consumer interests, establish and improve the some 10 000 national consensus standards currently approved as American National Standards.

ANSI provides that the interests of the public may have appropriate participation and representation in standardization activity, and cooperates with departments and agencies of U.S. Federal, state and local governments in achieving compatibility between government codes and standards and the voluntary standards of industry and commerce.

ANSI represents the interests of the United States in international nontreaty organizations such as the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). The Institute maintains close ties with regional organizations such as the Pacific Area Standards Congress (PASC) and the Pan American Standards Commission (COPANT). As such, ANSI coordinates the activities involved in the U.S. participation in these groups.

ANSI approval of standards is intended to verify that the principles of openness and due process have been followed in the approval procedure and that a consensus of those directly and materially affected by the standards has been achieved. ANSI coordination is intended to assist the voluntary system to ensure that national standards needs are identified and met with a set of standards that are without conflict or unnecessary duplication in their requirements.

Responsibility of approving American standards rests with the
American National Standards Institute, Inc.
25 West 43rd Street, Fourth floor
New York, NY 10036

National Standard of Canada
American National Standard

CSA/ANSI C22.2 No. 298:21
High voltage couplers

American National Standards Institute, Inc.

Approved on 07 26 21 by ANSI

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 www.csagroup.org/store/
or call toll-free 1-800-463-6727 or 416-747-4044.

ICS 29.120.30
ISBN 978-1-4883-3383-5

Contents

Technical Committee on Wiring Products

P. Desilets	Leviton Canada, Pointe-Claire, Québec, Canada *Category: Producer Interest*	*Chair*
T. Simmons	British Columbia Institute of Technology, Burnaby, British Columbia, Canada *Category: General Interest*	*Vice-Chair*
Z. Bekele	CSA Group, Independence, Ohio, USA *Category: General Interest*	
W. J. Burr	Burr and Associates, Campbell River, British Columbia, Canada *Category: User Interest*	
C. Davis	Electro Cables Incorporated, Trenton, Ontario, Canada *Category: Producer Interest*	
T. De Francesco	Aeromation Inc., Vancouver, British Columbia, Canada	
S. W. Douglas	QPS Evaluation Services Inc., Toronto, Ontario, Canada *Category: General Interest*	
D. Drysdale	Nexans Canada Inc., Fergus, Ontario, Canada *Category: Producer Interest*	
T. Hamden	CSA Group, Toronto, Ontario, Canada	
R. W. Horner	Atkore International (Allied Tube & Conduit Corporation), Harvey, Illinois, USA *Category: Producer Interest*	
J. Imlah	Imlah Electrical Consulting, Aloha, Oregon, USA *Category: User Interest*	

S. H. Mallikarachchi	City of Winnipeg Planning, Property & Development, Winnipeg, Manitoba, Canada *Category: Regulatory Authority*	
S. Mercier	Régie du bâtiment du Québec, Montréal, Québec, Canada *Category: Regulatory Authority*	
T. Olechna	Electrical Safety Authority, Mississauga, Ontario, Canada *Category: Regulatory Authority*	
K. L. Rodel	Pontypool, Ontario, Canada *Category: Producer Interest*	
A. Z. Tsisserev	AES Engineering Ltd., Vancouver, British Columbia, Canada *Category: General Interest*	
J. Turner	Swansea Consulting, Toronto, Ontario, Canada *Category: User Interest*	
L. Letea	CSA Group, Toronto, Ontario, Canada	*Project Manager*

Subcommittee on High Voltage Couplers

S. K. Alibhay	Hydro-Québec, Montréal, Québec, Canada
S. K. Asokkumar	Tyco Electronics Corporation, Fuquay-Varina, North Carolina, USA
T. J.H. Ferguson	Mine Cable Services Corporation, Edmonton, Alberta, Canada
D. Forshaw	Patton & Cooke Limited, Surrey, British Columbia, Canada
S. B. Friedman	General Cable Industries, Inc., Lincoln, Rhode Island, USA
M. A. Fuller	Nexans AmerCable Inc., Beaver, Pennsylvania, USA
R. Hakam	Unit Electrical Engineering Ltd., Okanagan Falls, British Columbia, Canada
C. Hayes	KonNx, Inc., Colbert, Washington, USA
K. Hryniw	Ministry of Energy, Mines and Petroleum Resources, Victoria, British Columbia, Canada
C. K. Hunter	Cerro Wire LLC, Las Vegas, Nevada, USA
G. Mallette	Syncrude Canada Ltd., Calgary, Alberta, Canada
B. Merritt	Cooper Crouse-Hinds, Syracuse, New York, USA
C. Miller	Unit Electrical Engineering Ltd., Okanagan Falls, British Columbia, Canada

N. Moubed	Anixter Canada Inc., Mississauga, Ontario, Canada	
J. H. Parkes	Mine Cable Services Corporation, Edmonton, Alberta, Canada	
D. Romanko	Patton & Cooke Limited, Surrey, British Columbia, Canada	
D. Zutz	Mine Cable Services Corporation, Edmonton, Alberta, Canada	
L. Letea	CSA Group, Toronto, Ontario, Canada	*Project Manager*
T. Hamden	CSA Group, Toronto, Ontario, Canada	

Preface

This is the second edition of CSA/ANSI C22.2 No. 298, *High voltage couplers*. It supersedes the previous edition published in 2016. It is one of a series of Standards issued under Part II of the *Canadian Electrical Code.*

For general information on the Standards of the *Canadian Electrical Code, Part II*, see the Preface of the latest edition of CSA C22.2 No. 0.

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 High Voltage Couplers, 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 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.

This Standard has been approved by the American National Standards Institute (ANSI) as an American National Standard.

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 committee interpretation has not already been published, CSA'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;*
   d) *rationale for the change.*

CSA/ANSI C22.2 No. 298:21
High voltage couplers

1 Scope

1.1

This Standard applies to locking-type, pin and sleeve type plugs, receptacles, power inlets, connectors, junction boxes, and live-end covers rated up to 1200 A (for single- and multi-pole) and above 750 V to 35 kV ac, 50/60 Hz or up to 1500 V dc and which shall have one or more pilot contacts for multi-pole configuration and above 750 V to 1000 V ac or dc for single pole configuration. These devices are intended to provide portable power from branch circuits, or are for direct connection to the branch circuit in accordance with the *Canadian Electrical Code, Part I*, or *National Electrical Code (NEC)* using portable power cables with copper conductors, for use in either indoor or outdoor, nonhazardous locations.

1.2

The products covered in this Standard are commonly, but not exclusively, used in the following applications:

a) open pit mining;
b) underground mining;
c) tunneling;
d) shore to ship power;
e) portable power equipment;
f) general industrial use; and
g) drilling.

1.3

This Standard does not apply to

a) products covered in CSA C22.2 No. 182.1 and UL 1682;
b) devices intended to be separated or connected under load; and
c) products covered in CSA C22.2 No. 282 and UL 2251.

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 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.