CSA GROUP
GROUPE CSA

CAN/CSA-C60888:03
(CEI/IEC 888:1987, MOD)
National Standard of Canada
Norme nationale du Canada
(reaffirmed/confirmée en 2020)

CAN/CSA-C60888:03
Zinc-coated steel wires for stranded conductors
(CEI/IEC 888:1987, MOD)

CAN/CSA-C60888:03
Fils en acier zingué pour conducteurs câblés
(CEI/IEC 888:1987, MOD)

IEC

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 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 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

CAN/CSA-C60888:03
March 2003

Title: *Zinc-coated steel wires for stranded conductors*

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 **2013638**.

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

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

Standards Council of Canada
Conseil canadien des normes

Cette Norme Nationale du Canada est disponible en versions française et anglaise.

National Standard of Canada

CAN/CSA-C60888:03

Zinc-coated steel wires for stranded conductors

(CEI/IEC 888:1987, IDT)

Prepared by
International Electrotechnical Commission

Reviewed by

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

Published in March 2003 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 www.csagroup.org/store/
or call toll-free 1-800-463-6727 or 416-747-4044.

ICS 29.240.20
ISBN 1-55397-041-1

CAN/CSA-C60888:03
Zinc-coated steel wires for stranded conductors

CSA Preface

This is the first edition of CAN/CSA-C60888, *Zinc-coated steel wires for stranded conductors*, which is an adoption, with Canadian deviations, of the identically titled CEI/IEC (Commission Électrotechnique Internationale/International Electrotechnical Commission) Standard 888 (first edition, 1987-12).

This Standard was reviewed for Canadian adoption by the CSA Technical Committee on Overhead Electrical Conductors, under the jurisdiction of the Strategic Steering Committee on Power Engineering and Electromagnetic Compatibility, and has been formally approved by the Technical Committee. A list of the members of the Technical Committee is available upon request. This Standard has been approved as a National Standard of Canada by the Standards Council of Canada.

March 2003

Inquiries regarding this National Standard of Canada should be addressed to
Canadian Standards Association
5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6
1-800-463-6727 • 416-747-4044
www.csa.ca

CONTENTS

Page

FOREWORD 5

PREFACE 5

Clause

1. Scope 7
2. Values for zinc-coated steel wires 7
3. Material 7
4. Freedom from defects 7
5. Diameter and tolerance on diameter 7
6. Length and tolerance on length 7
7. Joints 9
8. Sampling 9
9. Place of testing 9
10. Mechanical tests 9
    10.1 Stress at 1% extension 9
    10.2 Tensile test 11
    10.3 Ductility test 11
11. Zinc coating test 13
    11.1 Determination of mass of zinc coating 13
    11.2 Gas volumetric method 13
    11.3 Gravimetric method 13
    11.4 Test for adherence of zinc coating 13
    11.5 Continuity of coating 15
12. Certificate of compliance 15

APPENDIX A — Gas volumetric method for determining mass of zinc coating 19

APPENDIX B — Gravimetric method for determining mass of zinc coating 25

ZINC-COATED STEEL WIRES FOR STRANDED CONDUCTORS

---

1. Scope

This standard applies to zinc-coated steel wires used in the construction and/or reinforcement of conductors for overhead power transmission purposes.

It is intended to cover all wires used in constructions where the individual wire diameters, including coating, are in the range of 1.25 mm to 5.50 mm.

Three grades of steel are included to reflect the needs of conductor users: regular steel, high strength steel and extra high strength steel.

Two classes of coating represented by minimum zinc mass per unit area are included: Class 1 and Class 2.

2. Values for zinc-coated steel wires

For calculation purposes the following values for zinc-coated steel wires shall be used:

Density at 20 °C of both Class 1 and Class 2	7.78 kg/dm^3
Coefficient of linear expansion	11.5×10^{-6} per °C

3. Material

The steel wires shall have the properties specified hereinafter. The slab zinc shall be of 99.85% minimum zinc content. The coating on the wires may be applied by the hot dip or the electrolytic process.

4. Freedom from defects

The uncoated wires shall be smooth and free from all imperfections not consistent with good commercial practice. The zinc-coated wires shall be reasonably smooth and free from all imperfections not consistent with good commercial practice.

5. Diameter and tolerance on diameter

The diameter of the zinc-coated steel wire shall be taken as the mean of two measurements taken at 90° at the same cross-section.

The zinc-coated steel wires shall not depart from the nominal diameter, when measured over the coating, by more than the amounts given in Tables III, IV and V.

It is recognized that the surface of zinc-coatings, particularly those produced by hot dip galvanizing, are not perfectly smooth and free from irregularities. It is therefore intended that these tolerances be used in gauging the diameters within the uniform areas of zinc-coated wire.

6. Length and tolerance on length

Unless otherwise agreed between the purchaser and manufacturer, steel wires shall be supplied with a minimum length specified by the purchaser with a permitted variation of $^{+4}_{0}$%. Random lengths shorter or longer than this requirement are only acceptable if prior agreement between the purchaser and manufacturer is made.