CSA GROUP™

CSA C22.2 No. 60974-6:19
(IEC 60974-6:2015, MOD)
National Standard of Canada

CSA C22.2 No. 60974-6:19
Arc welding equipment — Part 6: Limited duty equipment
(IEC 60974-6:2015, MOD)

IEC

Standards Council of Canada
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Standards Update Service

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December 2019

Title: *Arc welding equipment — Part 6: Limited duty equipment*

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

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.

National Standard of Canada

CSA C22.2 No. 60974-6:19
Arc welding equipment — Part 6: Limited duty equipment
(IEC 60974-6:2015, MOD)

Note: *For brevity, this Standard will be referred to as "CAN/CSA-C22.2 No. 60974-6" throughout.*

DECEMBER 13, 2019

This national standard is based on publication IEC 60974-6, third edition (2015).

Prepared by
International Electrotechnical Commission

Reviewed by

Association of Standardization and Certification
NMX-J-038-1-ANCE-2019, Section 2
Third Edition

CSA Group
CSA C22.2 No. 60974-6:19
First Edition
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National Electrical Manufacturers Association
ANSI/NEMA/IEC 60974-6-2019
First Edition

ICS 25.160.30

ANSI/NEMA/IEC 60974-6-2019

Commitment for Amendments

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This Standard is subject to review within five years from the date of publication, and suggestions for its improvement will be referred to the appropriate committee. The technical content of IEC and ISO publications is kept under constant review by IEC and ISO. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include "Proposal for change" in the subject line: Standard designation (number); relevant clause, table, and/or figure number; wording of the proposed change; and rationale for the change.

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Preface

This is the harmonized ANCE, CSA Group, and NEMA Standard for Arc Welding Equipment — Part 6: Limited Duty Equipment. It is the third edition of NMX-J-038-1-ANCE; Section 2, the first edition of CSA C22.2 No. 60974-6, and the first edition of ANSI/NEMA/IEC 60974-6.

This harmonized standard is based on IEC publication 60974-6: third edition, *Arc welding equipment — Part 6: Limited duty equipment*, issued September 2015. IEC 60974-6 is copyrighted by the IEC.

This harmonized standard was prepared by the Association of Standardization and Certification (ANCE), CSA Group, and the National Electrical Manufacturers Association (NEMA). The efforts and support of Industry Associations [Cámara Nacional de Manufacturas Eléctricas (CANAME)], and of the Technical Harmonization Committee (THC 26) of the Council on the Harmonization of Electrotechnical Standards of the Nations of the Americas (CANENA), are gratefully acknowledged.

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

This standard was reviewed by the Standardization Committee of the Association of Standardization and Certification, A. C., CONANCE, committee integrated based on the terms of the Federal Law on Metrology and Standardization for developing, approving and reviewing Mexican Standards, in the framework of the principles of representativeness, balance, and consensus. In accordance with the CONANCE operative procedure, the consensus is the general agreement, characterized by the absence of opposition based on relevant aspects by any party directly affected, after a process of analysis to consider the points of view of all parties involved and conflicting arguments reconciliation.

This standard was reviewed by the CSA Subcommittee on Arc Welding Equipment, under the jurisdiction of the CSA Technical Committee on Industrial Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee.

In Canada, for general information on the Standards of the *Canadian Electrical Code, Part II,* see the preface of CAN/CSA-C22.2 No. 0.

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. This American National Standard is an adoption of IEC 60974-6 edition 3, *Arc Welding Equipment – Part 6: Limited Duty Equipment*, and was developed and approved in accordance with procedures set forth by the American National Standards Institute.

This standard was processed and approved by the Accredited Standards Committee W1. Committee approval does not necessarily imply that all Committee members voted for its approval. At the time this standard was published, Accredited Standards Committee W1 consisted of the following members:

John Freudenberg, Chairman Mike Madsen, Vice Chairman Greg Corban, Vice Chairman Khaled Masri, Secretary	
Organization Represented	*Name of Representative*
American Welding Society	David Werba — principal Andrew Davis — alternate
CenterLine (Windsor) Limited	David Beneteau
CSA Group	Lorenzo Tiracchia — principal Jean-Pierre Boivin — principal Sam Zaffino — alternate
ESAB Welding and Cutting	Carlos de Lima – principal
Hypertherm, Inc.	Gregory Corban — principal Patrick Salas — alternate
Intertek	Peter Sedor — principal Amanda Dotten – alternate
Lincoln Electric Company	Samir Farah — principal Frank Stupary – alternate
Miller Electric Manufacturing LLC	Mike Madsen – principal Terry Christianson-Plato — alternate
Northeast Product Safety Society	John Freudenberg
UL LLC	Chris Doty

Application of Standard

Where reference is made to a specific number of samples to be tested, the specified number is to be considered a minimum quantity.

Note: 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.

Level of harmonization

This standard adopts the IEC text with national differences.

This standard is published as an equivalent standard for ANCE, CSA Group, and NEMA. An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical national differences are allowed for codes and governmental regulations as well as those recognized as being in accordance with NAFTA Article 905, for example, because of fundamental climatic, geographical, technological, or infrastructural factors, scientific justification, or the level of protection that the country considers appropriate. Presentation is word for word except for editorial changes.

All national differences from the IEC text are included in the ANCE, CSA Group, and NEMA versions of the standard. While the technical content is the same in each organization's version, the format and presentation may differ.

It is the intent and objective of the USA, Canadian, and Mexican SDOs and associated Industries to avoid the use of single country deviations to the greatest extent possible and practical. Single country deviations should only be used as a last resort when all other options have been explored. Further this includes a commitment to review and reconsider any and all single country revisions at each revision cycle with the intent of finding solutions to remove the single county deviation in the spirit of tri-national harmonization. A list of work item requests will be recorded between revision cycles and by default removal of all single country deviations will be on the list for the next revision cycle.

Reasons for differences from IEC

National Differences from the IEC are being added in order to address regulatory and safety situations present in Canada, Mexico, and the USA.

Interpretations

The interpretation by the standards development organization of an identical or equivalent standard is based on the literal text to determine compliance with the standard in accordance with the procedural rules of the standards development organization. If more than one literal interpretation has been identified, a revision is to be proposed as soon as possible to each of the standards development organizations to more accurately reflect the intent.

ANCE effective date

The effective date for ANCE will be announced through the Diario Oficial de la Federación (Official Gazette) and is indicated on the cover page.

NEMA Effective Date

This NEMA effective date is a recommendation of the ANSI Accredited Standards Committee W1 and is not part of this Standard. This Standard cancels and replaces ANSI/UL 551:2009 (published April 24, 2009) on the effective date. The effective date for all new product submittals to this Standard is three (3) years after the publication date of this Standard.

The requirements in this Standard should be used for new product submittals made after the publication date of this Standard. If this Standard is used, a product will be evaluated under all of the requirements of this Standard. If a product within the scope of this Standard was listed to ANSI/UL 551:2009, compliance with all the requirements in this Standard will be required as a condition of continued Listing after June 30, 2023.

A product Listed to a previous standard can continue to be Listed until the standard's sunset date (either June 30, 2023, as noted above) if there are only minor changes to the product's construction and all other requirements of the certification body have been met. In general, a minor change will not require a complete sequence of testing. Examples of minor changes include use of an alternate enclosure polymeric material, use of an alternate electrical component such as a relay or switch, and use of an alternate manufacturer for a material or component.

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For ANCE, the text, figures, and tables of International Electrotechnical Commission Publication 60974-6:2015, *Arc welding equipment — Part 6: Limited duty equipment*, copyright 2015, are used in this standard according to the guidelines provided in the ISO/IEC/POCOSA.

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NATIONAL DIFFERENCES

In the ANCE, CSA Group, and NEMA publications of this standard, National Differences from the text of International Electrotechnical Commission (IEC) Publication 60974-6, *Arc welding equipment — Part 6: Limited duty equipment*, copyright 2015, are indicated by notations (differences) and are presented in bold text. The national difference type is included in the body.

There are five types of National Differences as noted below. The difference type is noted on the first line of the National Difference in the standard. The standard may not include all types of these National Differences.

DR – These are National Differences based on the **national regulatory requirements**.

D1 – These are National Differences which are based on **basic safety principles and requirements**, elimination of which would compromise safety for consumers and users of products.

D2 – These are National Differences from IEC requirements based on existing **safety practices**. These requirements reflect national safety practices, where empirical substantiation (for the IEC or national requirement) is not available or the text has not been included in the IEC standard.

DC – These are National Differences based on the **component standards** and will not be deleted until a particular component standard is harmonized with the IEC component standard.

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>
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ARC WELDING EQUIPMENT —

Part 6: Limited duty equipment

FOREWORD

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International Standard IEC 60974-6 has been prepared by IEC technical committee 26: Electric welding.

This third edition cancels and replaces the second edition published in 2010. It constitutes a technical revision.

The main significant technical changes with respect to the previous edition are the following:

– modified measurement conditions (see 7.3.1);
– improved values for temperature limits according to the class of insulation (see Table 1);
– improved maximum temperature limits (see Table 2);
– deleted overload test.

The text of this standard is based on the following documents:

FDIS	Report on voting
26/572/FDIS	26/581/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This standard is to be used in conjunction with IEC 60974-1:2012.

In this standard, the following print types are used:

– *conformity statements: in italic type.*

A list of all the parts in the IEC 60974 series, published under the general title *Arc welding equipment*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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DV.1 DE *Modify the Foreword by adding the following:*

The numbering system in this standard uses a space instead of a comma to indicate thousands and uses a comma instead of a period to indicate a decimal point. For example, 1 000 means 1,000 and 1,01 means 1.01.

ARC WELDING EQUIPMENT –

Part 6: Limited duty equipment

1 Scope

This part of IEC 60974 specifies safety and performance requirements applicable to limited duty arc welding and cutting power sources and auxiliaries designed for use by laymen. Electrically powered equipment is intended to be connected to the single phase public low-voltage supply system. Engine driven power sources cannot exceed output power of 7,5 kVA.

NOTE 1 This equipment is typically used by non-professionals in residential areas.

This part of IEC 60974 is not applicable to arc welding and cutting power sources that require for operation:

- arc striking and stabilizing devices;
- liquid cooling systems;
- gas consoles;
- three-phase input supply;

and which are intended for industrial and professional use only.

This part of IEC 60974 is not applicable to arc welding and cutting power sources and ancillary equipment used in:

- mechanically guided applications;
- submerged arc welding process;
- plasma gouging process;
- plasma welding process;

that are covered by other parts of IEC 60974.

NOTE 2 Power sources, wire feeders, torches and electrode holders designed for industrial and professional use are respectively covered by IEC 60974-1, IEC 60974-5, IEC 60974-7 and IEC 60974-11.

NOTE 3 This part of IEC 60974 does not specify electromagnetic compatibility (EMC) requirements that are given in IEC 60974-10.

1DV.1 D1 *Modify Clause 1 by adding the following note:*

NOTE 4DV Welding equipment that has been designed to comply with Table DVA.3, Ref. No. 1, and that is intended for industrial and professional use, and that meets all the scope limitations of this standard, is suitable for use by laypersons, provided the additional instructions and markings requirements of this standard are met.

1DV.2 D1 *Modify Clause 1 by adding the following:*

The following power sources for arc-welding and plasma cutting complying with at least onethe following conditions are out of scope of this standard:

a) have an internal combustion engine;

b) have a nominal three-phase supply voltage;

c) have a single rated supply voltage greater than or equal to 220 V; or

d) have multiple nominal supply voltages that do not include a nominal voltage of power supply less than or equal to 127 V single phase.

Power sources meeting these conditions are exempt from NOM-003 and are normally covered in the trinational adoption of IEC 60974-1 listed in Table DVA.3, Ref. No 1.