



ANSI/NEMA 60974-3-2009

American National Standard for Arc- Welding Equipment - Part 3: Arc Striking and Stabilizing Devices



National Electrical Manufacturers Association
1300 North 17th Street, Suite 900 • Rosslyn, VA 22209
www.NEMA.org





ANSI/IEC 60974-3-2009

**American National Standard
for Arc Welding Equipment**

**Part 3: Arc Striking and
Stabilizing Devices**



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*Arc Welding Equipment—
Part 3: Arc Striking and Stabilizing Devices*

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FOREWORD FOR U.S. ADOPTION

This American National Standard is an adoption of IEC 60974-3 edition 2, *Arc welding equipment —Part 3: Arc striking and stabilizing devices*, and was developed and approved in accordance with procedures set forth by the American National Standards Institute. It is the intention that this American National Standard be a standalone document, replacing the use of IEC 60974-3 in the U.S. As such, any reference in this standard to an IEC 60974 part is understood to mean a reference to the equivalent ANSI/IEC 60974 part, where it exists.

This standard contains all the original text as-is from IEC 60974-3, edition 2, in addition to a number of U.S. Differences to the IEC standard that were identified by Accredited Standards Committee W1, *Requirements for Apparatus Designed for Use in Arc Welding, Plasma Arc Cutting, and Allied Processes*. Each U.S. Difference is found both in a compilation of U.S. Differences following this foreword, and inserted in the appropriate place(s) in the standard relating to the difference. Each insertion is in red text and is marked by three lines on its left (two thin, one thick). Each difference is identified with the following format:

[Clause/Subclause Number]DV.[Number of Difference for the Given Clause/Subclause]

Following this format, the example 17.1DV.3 signifies that it is the third U.S. Difference to subclause 17.1.

Suggestions for the improvement of this standard are welcome and should be submitted to the Secretariat of Accredited Standards Committee W1 as follows:

Greg Winchester, ASC W1 Secretary
c/o National Electrical Manufacturers Association
1300 North 17th Street, Suite 1752
Rosslyn, VA 22209
Fax 703-841-3399
Email gre_winchester@nema.org

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:

Organization Represented	Name of Representative
American Welding Society	Andrew Davis – principal Dick Holdren – alternate
CenterLine (Windsor) Ltd.	David Beneteau
CSA International	Andrew Krumins
ESAB Welding and Cutting	Charles Aimar
Hypertherm Inc.	Tony Zeller – principal Bill Lynn – alternate
Lincoln Electric Company	Frank Stupczy – principal Gary Mikitin – alternate
Miller Electric Manufacturing Company	David Werba – principal Terry Christianson-Plato – alternate Mike Madsen – alternate
Northeast Product Safety Society	John Freudenberg
Wayne Hoffman - Consultant / U.S. Technical Advisor, IEC TC 26	Wayne Hoffman

COMPILATION OF U.S. DIFFERENCES

NOTE This section is an integral part of American National Standard ANSI/IEC 60974-3. See the section "Foreword for U.S. Adoption" for an explanation of the format used to identify U.S. Differences.

ForewordDV.1 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.

GlobalDV.1 Throughout this document, replace the phrase "this part of IEC 60974" with "this part of ANSI/IEC 60974"

2DV.1 Modify clause 2 by replacing the reference to IEC 60974-1 with a reference to ANSI/IEC 60974-1 and adding the following text and note:

All subsequent references in this standard to IEC 60974-1 shall be a reference to ANSI/IEC 60974-1.

NOTE ANSI/IEC 60974-1-2008 contains the entire original text from IEC 60974-1:2005 plus U.S. Differences.

2DV.2 Modify clause 2 by replacing the reference to IEC 60974-7 with a reference to ANSI/IEC 60974-7 and adding the following text and note:

All subsequent references in this standard to IEC 60974-7 shall be a reference to ANSI/IEC 60974-7.

NOTE ANSI/IEC 60974-7-2009 contains the entire original text from IEC 60974-7:2005 plus U.S. Differences.

17.1DV.1 Modify 17.1 by replacing the third paragraph and accompanying warning statement with the following:

If the use of longer torch or return cables increases the risk of electric shock (see limits of Clause 11) due to an impulse current, the manufacturer shall state in the instructions

- maximum cable length (in m) and torch type;
- the following warning, or its equivalent:

WARNING. ELECTRIC SHOCK can KILL. Do not exceed manufacturer's specified cable length.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ARC WELDING EQUIPMENT –

Part 3: Arc striking and stabilizing devices

FOREWORD

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International Standard IEC 60974-3 has been prepared by IEC technical committee 26: Electric welding.

This second edition cancels and replaces the first edition published in 2003 and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- changes induced by the publication of IEC 60974-1, edition 3;
- routine test for built-in unit (see 5.5.2);
- clarification of calculation of the rated peak voltage (see 11.1 and Figure 1).

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

FDIS	Report on voting
26/363/FDIS	26/367/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 part of IEC 60974 shall be read in conjunction with IEC 60974-1.

The list of all the parts of IEC 60974, under the general title *Arc welding equipment*, can be found on the IEC web site.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

ForewordDV.1 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 3: Arc striking and stabilizing devices

GlobalDV.1 Throughout this document, replace the phrase "this part of IEC 60974" with "this part of ANSI/IEC 60974"

1 Scope

This part of IEC 60974 specifies safety requirements for industrial and professional arc striking and arc stabilizing devices used in arc welding and allied processes.

This part of IEC 60974 is applicable to stand-alone arc striking and arc stabilizing devices that are either connected to a separate welding power source or built into the welding power source enclosure.

NOTE 1 Typical allied processes are for example plasma arc cutting and arc spraying.

NOTE 2 This standard does not include electromagnetic compatibility (EMC) requirements.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60974-1:2005, *Arc welding equipment – Part 1: Welding power sources*

2DV.1 Modify clause 2 by replacing the reference to IEC 60974-1 with a reference to ANSI/IEC 60974-1 and adding the following text and note:

All subsequent references in this standard to IEC 60974-1 shall be a reference to ANSI/IEC 60974-1.

NOTE ANSI/IEC 60974-1-2008 contains the entire original text from IEC 60974-1:2005 plus U.S. Differences.

IEC 60974-7:2005, *Arc welding equipment – Part 7: Torches*

2DV.2 Modify clause 2 by replacing the reference to IEC 60974-7 with a reference to ANSI/IEC 60974-7 and adding the following text and note:

All subsequent references in this standard to IEC 60974-7 shall be a reference to ANSI/IEC 60974-7.

NOTE ANSI/IEC 60974-7-2009 contains the entire original text from IEC 60974-7:2005 plus U.S. Differences.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60974-1 and IEC 60974-7, as well as the following, apply.

3.1

arc striking device

device which superimposes a voltage on the welding circuit to ignite an arc