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ANSI/NEMA/IEC 60974-3-2021

*Arc Welding Equipment Part 3: Arc Striking and Stabilizing Devices
(Adoption with Modifications and Revision)*

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FOREWORD FOR U.S. ADOPTION

This American National Standard is an adoption of IEC 60974-3, edition 4, *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 4, 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:

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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:

Greg Corban, Chair
 Mike Madsen, Vice-Chair
 Khaled Masri, Secretary

Name		Organization	Voting Status	Interest Category
Andrew	Davis	American Welding Society	Alt. Voting	ANSI - GEN INTEREST
David	Werba	American Welding Society	Voting	ANSI - GEN INTEREST
David	Beneteau	CenterLine (Windsor) Limited	Voting	ANSI - GEN INTEREST
Jean-Pierre	Boivin	CSA Group - Certification	Voting	ANSI - USER
Ramana	Tangirala	CSA Group - Standards	Alt. Voting	ANSI - USER
Sam	Zaffino	CSA Group - Certification	Alt. Voting	ANSI - USER
Lorenzo	Tiracchia	CSA Group - Standards	Voting	ANSI - GEN INTEREST
Carlos	De Lima	ESAB Welding & Cutting Products	Voting	ANSI - PRODUCER
Gregory	Corban	Hypertherm Incorporated	Voting	ANSI - PRODUCER
Patrick	Salas	Hypertherm Incorporated	Alt. Voting	ANSI - PRODUCER
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Amanda	Dotten	Intertek	Alt. Voting	ANSI - USER
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Samir	Farah	Lincoln Electric	Voting	ANSI - PRODUCER
Frank	Stupczy	Lincoln Electric	Alt. Voting	ANSI - PRODUCER
Terry	Christianson	Miller Electric Mfg. LLC An ITW	Alt. Voting	ANSI - PRODUCER
	-Plato	Welding Company		
Joe	Krueger	Miller Electric Mfg. LLC An ITW	Alt. Voting	ANSI - PRODUCER
		Welding Company		
Michael	Madsen	Miller Electric Mfg. LLC An ITW	Voting	ANSI - PRODUCER
		Welding Company		
John	Freudenberg	Northeast Product Safety Society	Voting	ANSI - GEN INTEREST
Christopher	Doty	UL LLC	Voting	ANSI - USER

COMPILATION OF U.S. DIFFERENCES

NOTE This section is an integral part of American National Standard ANSI/NEMA/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/NEMA/IEC 60974"

GlobalDV.2 Throughout this document, the following IEC and U.S. terms are equivalent:

- a) "MIG" and "GMAW"
- b) "MAG" and "GMAW"
- c) "MIG/MAG" and "GMAW"
- d) "TIG" and "GTAW"
- e) "metal inert gas arc welding" and "gas metal arc welding"
- f) "metal active gas arc welding" and "gas metal arc welding"
- g) "tungsten inert gas" and "gas tungsten arc welding"
- h) "tungsten inert gas arc welding" and "gas tungsten arc welding"

2DV.1 Modify clause 2 by replacing the IEC 60974-1 reference with a reference to ANSI/NEMA/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/NEMA/IEC 60974-1.

NOTE ANSI/NEMA/IEC 60974-1-2019 contains the entire original text from IEC 60974-1:2017 plus U.S. Differences.

2DV.2 Modify clause 2 by replacing the IEC 60974-7 reference with a reference to ANSI/NEMA/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/NEMA/IEC 60974-7.

NOTE ANSI/NEMA/IEC 60974-7-2021 contains the entire original text from IEC 60974-7:2021 plus U.S. Differences.

11.2.3DV.1 Modify Clause 11.2.3 by replacing the sentence after the conformity statement with the following:

The voltage is obtained by subtraction of the allowable rated no-load voltage given in Table 13 of IEC 60974-1:2017 (see Figure 5).

11.2.4DV.1 Modify Clause 11.2.4 by replacing the sentence after the conformity statement with the following:

The voltage is obtained by subtraction of the allowable rated no-load voltage given in Table 13 of IEC 60974-1:2017 (see Figure 5).

11.3DV.1 Modify Clause 11.3 by replacing the second paragraph after the conformity statement with the following:

The ARC STRIKING AND STABILIZING VOLTAGE is obtained by subtraction of the allowable rated no-load voltage given in Table 13 of IEC 60974-1:2017 (see Figure 5).

11.3DV.2 Modify Clause 11.3 by replacing the designator for the dashed line in Figure 5 with the following:

Allowable rated U_0

11.5DV.1 Modify Clause 11.5 by replacing the first paragraph with the following:

In the event of failure of any component, ARC STRIKING AND STABILIZING DEVICES shall be

a) designed to ensure that the output limits as specified in 11.1 through 11.4 are not exceeded

or

b) fitted with a protection system which ensures that the output limits as specified in 11.1 through 11.4 are not exceeded beginning 0.3 s after the failure.

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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 fourth edition cancels and replaces the third edition published in 2013 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 60974-1:2017;
- reference to IEC 60974-1:2017/AMD1:2019 in Clause 2;
- Figure 2 is updated where a subtraction of the proportion of the no-load voltage is shown;
- requirement for safe operation of the arc striking and stabilising devices in the event of failure, in 11.5;
- requirements for the rating plate as in IEC 60974-1:2017, Clause 15.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
26/671/FDIS	26/676/RVD

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

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

In this document, the following print types are used:

- conformity statements: in *italic* type.
- terms used throughout this document which have been defined in Clause 3: SMALL CAPITALS.

This International Standard is to be read in conjunction with IEC 60974-1:2017.

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 document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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

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ARC WELDING EQUIPMENT –

Part 3: Arc striking and stabilizing devices

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- f) "metal active gas arc welding" and "gas metal arc welding"
- g) "tungsten inert gas" and "gas tungsten arc welding"
- h) "tungsten inert gas arc welding" and "gas tungsten arc welding"

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 document is applicable to ARC STRIKING and STABILIZING DEVICES which are stand-alone (separate from the welding equipment) or built in (housed in a single enclosure with other arc welding equipment).

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

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

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60974-1:2017, *Arc welding equipment – Part 1: Welding power sources*