



ANSI/IEC 60974-7-2009

**American National Standard
for Arc Welding Equipment**

Part 7: Torches

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*Arc Welding Equipment—
Part 7: Torches*

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FOREWORD FOR U.S. ADOPTION

This American National Standard is an adoption of IEC 60974-7, edition 2, *Arc Welding Equipment – Part 7: Torches*, 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 60974-7 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 60974-7, 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:

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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:

John Freudenberg, Chairman
Wayne Hoffman, Vice Chairman
Greg Winchester, Secretary

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Centerline (Windsor) Limited

CSA International

ESAB Welding and Cutting

Hypertherm Inc.

Lincoln Electric Company

Miller Electric Manufacturing Company

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ARC WELDING EQUIPMENT –

Part 7: Torches

FOREWORD

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International Standard IEC 60974-7 has been prepared by IEC technical committee 26: Electric welding.

This part of IEC 60974 is to be used in conjunction with IEC 60974-1.

This second edition cancels and replaces the first edition published in 2000 and constitutes a technical revision. The main changes with respect to the previous edition are listed below:

- the scope includes relationship to IEC 60974-1 and a note is added (see Clause 1);
- normative references are updated (see Clause 2);
- a preliminary insulation resistance test is added (see item b) of 6.2);
- TIG and plasma torches now have an arc striking and stabilizing voltage rating (see 7.1, 7.3 and item c) of Clause 13);
- a procedure to determine the arc striking and stabilizing voltage rating of plasma torches is given (see 7.3);

- requirements for plasma cutting torches are updated to harmonize with IEC 60974-1:2005 (see 7.4.2);
- “Heating test for liquid cooled torches” and “Instructions for use” incorporate elements of IEC 60974-2 (see 8.3 and item e) of Clause 13);
- during the heating test, the gas flow tolerance has been modified (see Tables 2, 3, 4 and 6);
- the temperature of the hot wire is maintained during the “Resistance to hot objects” test (see Clause 10);
- accessible parts shall not have sharp edges, rough surfaces or protruding parts likely to cause injury (see 11.2);
- “Instructions for use” shall contain environmental conditions (see item h) of Clause 13).

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

FDIS	Report on voting
26/308/FDIS	26/312/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.

IEC 60974 consists of the following parts, under the general title *Arc welding equipment*:

- Part 1: Welding power sources
- Part 2: Liquid cooling systems
- Part 3: Arc striking and stabilizing devices
- Part 4: Safety, maintenance and inspection of arc welding equipment in use ¹
- Part 5: Wire feeders
- Part 6: Limited duty manual metal arc welding power sources
- Part 7: Torches
- Part 8: Gas consoles for welding and plasma cutting systems
- Part 10: Electromagnetic compatibility (EMC) requirements
- Part 11: Electrode holders
- Part 12: Coupling devices for welding cables
- Part 13: Terms ¹

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.

¹ Under consideration.

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 7: Torches

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

1 Scope

This part of IEC 60974 specifies safety and construction requirements for torches for arc welding and allied processes.

In this part of IEC 60974, a torch consists of the torch body, the cable-hose assembly and other components.

This part of IEC 60974 is not applicable to electrode holders for manual metal arc welding or torches for air-arc cutting/gouging.

NOTE In this part of IEC 60974, the terms "torch" and "gun" are interchangeable. For convenience "torch" has been used in the following text.