ANSI/IEC 60974-7-2009

American National Standard for 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:

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:
<table>
<thead>
<tr>
<th>Organization Represented</th>
<th>Name of Representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Welding Society</td>
<td>Andrew Davis – principal</td>
</tr>
<tr>
<td></td>
<td>Dick Holgren – alternate</td>
</tr>
<tr>
<td>Centerline (Windsor) Limited</td>
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<td>Hypertherm Inc.</td>
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</tr>
<tr>
<td></td>
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</tr>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Wayne Hoffman – Consultant / U.S. Technical Advisor, IEC TC 26</td>
<td>Wayne Hoffman</td>
</tr>
</tbody>
</table>
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOREWORD</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>Scope</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>Normative references</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>Terms and definitions</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>Environmental conditions</td>
<td>17</td>
</tr>
<tr>
<td>5</td>
<td>Classification</td>
<td>17</td>
</tr>
<tr>
<td>6</td>
<td>Test conditions</td>
<td>18</td>
</tr>
<tr>
<td>7</td>
<td>Protection against electric shock</td>
<td>19</td>
</tr>
<tr>
<td>8</td>
<td>Thermal rating</td>
<td>22</td>
</tr>
<tr>
<td>9</td>
<td>Pressure of the liquid cooling system</td>
<td>27</td>
</tr>
<tr>
<td>10</td>
<td>Resistance to hot objects</td>
<td>28</td>
</tr>
<tr>
<td>11</td>
<td>Mechanical provisions</td>
<td>28</td>
</tr>
<tr>
<td>12</td>
<td>Marking</td>
<td>30</td>
</tr>
<tr>
<td>13</td>
<td>Instructions for use</td>
<td>30</td>
</tr>
<tr>
<td>Annex A</td>
<td>(informative) Additional terminology</td>
<td>32</td>
</tr>
<tr>
<td>Annex B</td>
<td>(normative) Position of the welding torches for the heating test</td>
<td>36</td>
</tr>
<tr>
<td>Annex C</td>
<td>(informative) Cooled copper block</td>
<td>37</td>
</tr>
<tr>
<td>Annex D</td>
<td>(informative) Copper block with a hole</td>
<td>38</td>
</tr>
<tr>
<td>Annex E</td>
<td>(informative) Copper bars with a slot</td>
<td>39</td>
</tr>
</tbody>
</table>

- Figure 1 – Device for testing the resistance to hot objects ........ 28
- Figure 2 – Device for the impact test ....................................... 29
- Figure A.1 – Torch for metal inert/active gas (MIG/MAG) and self-shielded flux-cored arc welding ........................................ 34
- Figure A.2 – Gun for metal inert/active gas (MIG/MAG) and self-shielded flux-cored arc welding ........................................ 34
- Figure A.3 – Torch for tungsten inert gas arc welding .................. 34
- Figure A.4 – Torch for plasma arc welding .................................. 34
- Figure A.5 – Torch for plasma cutting ........................................ 34
- Figure A.6 – Supply unit ............................................................ 34
- Figure A.7 – Mechanically guided plasma torch .............................. 35
- Figure B.1 – MIG/MAG torches ..................................................... 36
- Figure B.2 – TIG torches .............................................................. 36
- Figure B.3 – Plasma welding torches ........................................... 36
- Figure C.1 – Water-cooled copper block – Example .......................... 37
- Figure D.1 – Water-cooled copper block with a hole – Example ........ 38
- Figure E.1 – Water-cooled copper bars with a slot – Example .......... 39
Table 1 – Voltage rating of torches ...................................................................................... 19
Table 2 – Test values for metal inert gas arc welding (MIG) of aluminium alloys ............ 24
Table 3 – Test values for metal active gas arc welding (MAG) of mild steel ...................... 24
Table 4 – Test values for metal active gas arc welding (MAG) with flux-cored wire .......... 25
Table 5 – Test values for self-shielded flux-cored arc welding of mild steel .................... 25
Table 6 – Test values for tungsten inert gas arc welding (TIG) ........................................... 26
Table 7 – Test values for plasma arc welding ..................................................................... 27
Table A.1 – List of terms ..................................................................................................... 32
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:

<table>
<thead>
<tr>
<th>FDIS</th>
<th>Report on voting</th>
</tr>
</thead>
<tbody>
<tr>
<td>26/308/FDIS</td>
<td>26/312/RVD</td>
</tr>
</tbody>
</table>

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
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

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.
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.
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.