Irish Standard
I.S. EN 60974-2:2013

Arc welding equipment -- Part 2: Liquid cooling systems (IEC 60974-2:2013 (EQV))

I.S. EN 60974-2:2013

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I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

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English version

Arc welding equipment - Part 2: Liquid cooling systems
(IEC 60974-2:2013)

Matériel de soudage à l'arc - Partie 2: Systèmes de refroidissement par liquide (CEI 60974-2:2013)

Lichtbogenschweißeinrichtungen - Teil 2: Flüssigkeitskühlsysteme (IEC 60974-2:2013)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Ref. No. EN 60974-2:2013 E

Foreword

The text of document 26/494/FDIS, future edition 3 of IEC 60974-2, prepared by IEC/TC 26 "Electric welding" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60974-2:2013.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-11-30
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-02-28

This document supersedes EN 60974-2:2008.

EN 60974-2:2013 includes the following significant technical changes with respect to EN 60974-2:2008:

- changes induced by the publication of EN 60974-1:2012;
- addition of a liquid temperature fixed to 65 °C during the heating test in order to allow testing at different ambient air temperature (see 10 d));
- correction factor of cooling power at 40 °C required in instruction manual (see 12.1 o)).

This standard shall be used in conjunction with EN 60974-1:2012.

In this standard, the following print types are used:

- *conformity statements: in italic type.*

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 60974-2:2013 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60974-1	2012	Arc welding equipment - Part 1: Welding power sources	EN 60974-1	2012
IEC 60974-7	-	Arc welding equipment - Part 7:Torches	EN 60974-7	-
IEC 60974-10	-	Arc welding equipment - Part 10: Electromagnetic compatibility (EMC) requirements	EN 60974-10	-

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ARC WELDING EQUIPMENT –

Part 2: Liquid cooling systems

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60974-2 has been prepared by IEC technical committee 26: Electric welding.

This third edition cancels and replaces the first edition published in 2007 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 60974-1:2012;
- addition of a liquid temperature fixed to 65 °C during the heating test in order to allow testing at different ambient air temperature (see 10 d));
- correction factor of cooling power at 40 °C required in instruction manual (see 12.1 o)).

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

FDIS	Report on voting
26/494/FDIS	26/496/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.

In this standard, the following print types are used:

– *conformity statements: in italic type.*

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

The list of all 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 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.

ARC WELDING EQUIPMENT –

Part 2: Liquid cooling systems

1 Scope

This part of IEC 60974 specifies safety and construction requirements for industrial and professional liquid cooling systems used in arc welding and allied processes to cool torches.

This part of IEC 60974 is applicable to stand-alone liquid cooling systems that are either connected to a separate welding power source or built into the welding power source enclosure.

This part of IEC 60974 is not applicable to refrigerated cooling systems.

NOTE 1 Typical allied processes are electric arc cutting and arc spraying.

NOTE 2 This part of IEC 60974 does not include electromagnetic compatibility (EMC) requirements.

2 Normative references

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

IEC 60974-1:2012, *Arc welding equipment – Part 1: Welding power sources*

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

IEC 60974-10, *Arc welding equipment – Part 10: Electromagnetic compatibility (EMC) requirements*

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
cooling power
P
cooling energy related to the flow rate

3.2
liquid cooling system
system that circulates and cools liquid used for decreasing the temperature of torches

3.3
cooling power at 1 l/min
$P_{1\ l/min}$
cooling power at 1 l/min flow rate defined for comparison