



BSI Standards Publication

## Arc welding equipment

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Part 2: Liquid cooling systems (IEC 60974-2:2019)

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## National foreword

This British Standard is the UK implementation of EN IEC 60974-2:2019. It is identical to IEC 60974-2:2019. It supersedes BS EN 60974-2:2013, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee WEE/6, Electric arc welding equipment.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 May 2019.

### Amendments/corrigenda issued since publication

Date	Text affected
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## EUROPÄISCHE NORM

April 2019

ICS 25.160.30

Supersedes EN 60974-2:2013

English Version

## Arc welding equipment - Part 2: Liquid cooling systems (IEC 60974-2:2019)

Matériel de soudage à l'arc - Partie 2: Systèmes de  
refroidissement par liquide  
(IEC 60974-2:2019)

Lichtbogenschweißrichtungen - Teil 2:  
Flüssigkeitskühlssysteme  
(IEC 60974-2:2019)

This European Standard was approved by CENELEC on 2019-03-06. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## **European foreword**

The text of document 26/670/FDIS, future edition 4 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 IEC 60974-2:2019.

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) 2019-12-06
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-03-06

This document supersedes EN 60974-2:2013.

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

## **Endorsement notice**

The text of the International Standard IEC 60974-2:2019 was approved by CENELEC as a European Standard without any modification.

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(normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60974-1	2017	Arc welding equipment - Part 1: Welding power sources	EN IEC 60974-1	2018
IEC 60974-7	2013	Arc welding equipment - Part 7: Torches	EN 60974-7	2013
IEC 60974-10	2014	Arc welding equipment - Part 10: Electromagnetic compatibility (EMC) requirements	EN 60974-10	2014

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(informative)

### Relationship between this European standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

This European Standard has been prepared under a Commission's standardization request relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety objectives of that Directive, and associated EFTA regulations.

**Table ZZ.1 – Correspondence between this European standard and Annex I of Directive 2014/35/EU [2014 OJ L96]**

Safety objectives of Directive 2014/35/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
1(a)	Clauses 11, 12.1, 12.2	
1(b)	Clauses 12.1, 17.1	
1(c)	Clauses 1, 3, 4 see also points 2 and 3 below	Testing during periodic maintenance or after repair is covered in separate standards
2(a)	Clauses 6.1, 6.2, 6.3, 6.4, 6.5, 7.2, 7.3, 12.1 d) and e), 12.2.2, 12.2.3	
2(b)	Clauses 5.3, 6.1, 6.2, 6.3, 7.2, 7.3, 8.2	Hazards arising from electric, magnetic, and electromagnetic fields, other ionizing and non-ionizing radiation are covered in separate standards
2(c)	Clauses 5.4 c), 6.2, 6.4.5, 7.1, 8.3, 9.1, 12.1 m)	
2(d)	Clause 6.1	
3(a)	Clause 7.1	
3(b)	Clauses 4, 6.2, 6.4.9, 7.1, 12.1 n)	Functional safety is covered in separate standards Safety-related security is covered in separate standards
3(c)	Clause 9	

**WARNING 1** — Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

**WARNING 2** — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### ARC WELDING EQUIPMENT –

### Part 2: Liquid cooling systems

#### FOREWORD

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International Standard IEC 60974-2 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:

- a) changes induced by the publication of IEC 60974-1:2017;
- b) reference in 11.1 changed.

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

FDIS	Report on voting
26/670/FDIS	26/675/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 standard, the following print types are used:

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

This document shall be used in conjunction with IEC 60974-1:2017.

A 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 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 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 document is applicable to LIQUID COOLING SYSTEMS which are stand-alone (separate from the welding equipment) or built-in (housed in a single enclosure with other welding equipment).

This document 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 that are given in IEC 60974-10.

#### 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*

IEC 60974-7:2013, *Arc welding equipment – Part 7: Torches*

IEC 60974-10:2014, *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 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

##### 3.1 cooling power

*P*

power related to the coolant flow rate and temperature rise

##### 3.2 liquid cooling system

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