SVENSK STANDARD SS-EN IEC 60974-10

Fastställd	Utgåva	Sida	Ansvarig kommitté
2022-02-16	4	1 (1+40)	SEK TK 26

Bågsvetsutrustning – Del 10: EMC-fordringar

Arc welding equipment – Part 10: Electromagnetic compatibility (EMC) requirements

Som svensk standard gäller europastandarden EN IEC 60974-10:2021. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60974-10:2021.

Nationellt förord

Europastandarden EN IEC 60974-10:2021

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60974-10, Fourth edition, 2020 - Arc welding equipment - Part 10: Electromagnetic compatibility (EMC) requirements**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60974-10, utgåva 3, 2014 med ändring SS-EN 60974-10/A1:2015, gäller ej fr o m 2024-11-10.

ICS 25.160.30

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Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60974-10

December 2021

ICS 25.160.30

Supersedes EN 60974-10:2014 and all of its amendments and corrigenda (if any)

English Version

Arc welding equipment - Part 10: Electromagnetic compatibility (EMC) requirements (IEC 60974-10:2020)

Matériel de soudage à l'arc - Partie 10: Exigences de compatibilité électromagnétique (CEM) (IEC 60974-10:2020)

Lichtbogenschweißeinrichtungen - Teil 10: Anforderungen an die elektromagnetische Verträglichkeit (EMV) (IEC 60974-10:2020)

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

Ref. No. EN IEC 60974-10:2021 E

European foreword

The text of document 26/695/FDIS, future edition 4 of IEC 60974-10, prepared by IEC/TC 26 "Electric welding" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60974-10:2021.

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) 2022-08-10
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-11-10

This document supersedes EN 60974-10:2014 and all of its amendments and corrigenda (if any).

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.

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60974-10:2020 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60417	NOTE	Harmonized as HD 243 S7
IEC 60974-9:2018	NOTE	Harmonized as EN IEC 60974-9:2018 (not modified)
CISPR 32:2015	NOTE	Harmonized as EN 55032:2015 (not modified) + A11:2020

Annex ZA
(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.

Publication	Year	Title	EN/HD	Year
IEC 60974-1	2017	Arc welding equipment - Part 1: Welding power sources	EN IEC 60974-1	2018
+ A1	2019		+ A1	2019
IEC 60974-6	2015	Arc welding equipment - Part 6: Limited duty equipment	EN 60974-6	2016
IEC 61000-3-2	2018	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current -16 A per phase)	EN IEC 61000-3-2	2019
IEC 61000-3-3	2013	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16 A per phase and not subject to conditional connection	EN 61000-3-3	2013
+ A1	2017		+ A1	2019
IEC 61000-3-11	2017		EN IEC 61000-3-11	2019
IEC 61000-3-12	2011	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤ 75 A per phase	EN 61000-3-12	2011
IEC 61000-4-2	2008	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009
IEC 61000-4-3	2006	Electromagnetic compatibility (EMC) - Part 4-3 : Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006
+ A1	2007		+ A1	2008
+ A2	2010		+ A2	2010

Publication	Year	Title	EN/HD	Year
IEC 61000-4-4	2012	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2012
IEC 61000-4-5	2014	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2014
+ A1	2017		+ A1	2017
IEC 61000-4-6	2013	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	2014
IEC 61000-4-11	2004	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11	2004
+ A1	2017		+ A1	2017
IEC 61000-4-34	2005	Electromagnetic compatibility (EMC) - Part 4-34: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current more than 16 A per phase	EN 61000-4-34	2007
+ A1	2009		+ A1	2009
IEC 61000-6-1	2016	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity standard for residential, commercial and light-industrial environments	EN IEC 61000-6-1	2019
IEC 61000-6-2	2016	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments	EN IEC 61000-6-2	2019
IEC 61000-6-3	2006	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments	EN 61000-6-3	2007
+ A1	2010		+ A1	2011
-	-		+ AC	2012
IEC 61000-6-4	2018	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments	EN IEC 61000-6-4	2019
CISPR 11 (mod)	2015	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	EN 55011	2016
+ A1	2016		+ A1	2017
-	-		+ A11	2020
+ A2	2019		+ A2	2021
CISPR 14-1	2016	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission	EN 55014-1	2017
-	-		+ A11	2020

Publication	Year	Title	EN/HD	Year
CISPR 16-1-1	2019	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus	EN IEC 55016-1-1	2019
CISPR 16-1-2	2014	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-2: Radio disturbance and immunity measuring apparatus - Coupling devices for conducted disturbance measurements	EN 55016-1-2	2014
+ A1	2017		+ A1	2018
CISPR 16-1-4	2019	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4: Radio disturbance and immunity measuring apparatus - Antennas and test sites for radiated disturbance measurements	EN IEC 55016-1-4	2019

IEC 60974-10

Edition 4.0 2020-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Arc welding equipment –
Part 10: Electromagnetic compatibility (EMC) requirements

Matériel de soudage à l'arc –
Partie 10: Exigences de compatibilité électromagnétique (CEM)

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 25.160.30

ISBN 978-2-8322-8027-0

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ARC WELDING EQUIPMENT –

Part 10: Electromagnetic compatibility (EMC) requirements

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 60974-10 has been prepared by IEC technical committee 26: Electric welding.

This fourth edition cancels and replaces the third edition published in 2014 and its Amendment 1:2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) updated normative references;
b) requirements for battery powered equipment;
c) requirements for equipment combined with radio transmitters/receivers.

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

FDIS	Report on voting
26/695/FDIS	26/697/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.

A list of all parts in the IEC 60974 series, published 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 10: Electromagnetic compatibility (EMC) requirements

1 Scope

This part of IEC 60974 is applicable to equipment for arc welding and allied processes, including power sources and ancillary equipment, for example wire feeders, liquid cooling systems, arc striking and stabilizing devices and chargers for battery powered equipment.

NOTE 1 Allied processes are, for example, plasma cutting and arc stud welding.

NOTE 2 This document does not specify basic safety requirements for arc welding equipment such as protection against electric shock, unsafe operation, insulation coordination and related dielectric tests.

Arc welding equipment containing a radio receiver or transmitter is within the scope of this document.

The radiated emission requirements in this document are not intended to be applicable to the intentional transmissions from a radio transmitter as defined by the ITU nor to any spurious emissions related to these intentional transmitters.

This document specifies

a) applicable standards and test methods for radio-frequency (RF) emissions;
b) applicable standards and test methods for harmonic current emission, voltage fluctuations and flicker;
c) immunity requirements and test methods for continuous and transient, conducted and radiated disturbances including electrostatic discharges;
d) additional requirements for equipment powered by internal or external batteries (Annex D);
e) additional requirements for equipment containing radio frequency transmitters/receivers (Annex E).

Arc welding equipment type tested in accordance with, and which has met the requirements set in, this document is considered to be in compliance for all applications.

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 60974-1:2017/AMD1:2019

IEC 60974-6:2015, *Arc welding equipment – Part 6: Limited duty equipment*

IEC 61000-3-2:2018, *Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*

IEC 61000-3-3:2013, *Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection*
IEC 61000-3-3:2013/AMD1:2017

IEC 61000-3-11:2017, *Electromagnetic compatibility (EMC) – Part 3-11: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems – Equipment with rated current ≤ 75 A and subject to conditional connection*

IEC 61000-3-12:2011, *Electromagnetic compatibility (EMC) – Part 3-12: Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase*

IEC 61000-4-2:2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*
IEC 61000-4-3:2006/AMD1:2007
IEC 61000-4-3:2006/AMD2:2010

IEC 61000-4-4:2012, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5:2014, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*
IEC 61000-4-5:2014/AMD1:2017

IEC 61000-4-6:2013, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-11:2004, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*
IEC 61000-4-11:2004/AMD1:2017

IEC 61000-4-34:2005, *Electromagnetic compatibility (EMC) – Part 4-34: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current more than 16 A per phase*
IEC 61000-4-34:2005/AMD1:2009

IEC 61000-6-1:2016, *Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity standard for residential, commercial and light-industrial environments*

IEC 61000-6-2:2016, *Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity standard for industrial environments*

IEC 61000-6-3:2006, *Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments*
IEC 61000-6-3:2006/AMD1:2010

IEC 61000-6-4:2018, *Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments*

CISPR 11:2015, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*
CISPR 11:2015/AMD1:2016
CISPR 11:2015/AMD2:2019

CISPR 14-1:2016, *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission*

CISPR 16-1-1:2019, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus*

CISPR 16-1-2:2014, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-2: Radio disturbance and immunity measuring apparatus – Coupling devices for conducted disturbance measurements*
CISPR 16-1-2:2014/AMD1:2017

CISPR 16-1-4:2019, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-4: Radio disturbance and immunity measuring apparatus – Antennas and test sites for radiated disturbance measurements*