

# FINAL VERSION

# VERSION FINALE

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

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



## CONTENTS

FOREWORD.....	5
1 Scope.....	7
2 Normative references .....	7
3 Terms and definitions .....	8
4 General test requirements .....	9
4.1 Test conditions .....	9
4.2 Measuring instruments.....	9
4.3 Artificial mains network .....	9
4.4 Voltage probe .....	10
4.5 Antennas .....	10
4.6 Load-decoupling network .....	10
5 Test setup for emission and immunity.....	10
5.1 General.....	10
5.2 Load .....	13
5.3 Ancillary equipment .....	13
5.3.1 General requirements .....	13
5.3.2 Wire feeders .....	13
5.3.3 Remote controls .....	14
5.3.4 Arc striking and stabilizing devices .....	14
5.3.5 Liquid cooling systems.....	14
6 Emission tests .....	14
6.1 Classification for RF emission tests .....	14
6.1.1 Class A equipment.....	14
6.1.2 Class B equipment.....	14
6.2 Test conditions .....	15
6.2.1 Welding power source .....	15
6.2.2 Load voltages .....	16
6.2.3 Wire feeders .....	16
6.2.4 Ancillary equipment .....	16
6.3 Emission limits.....	16
6.3.1 General .....	16
6.3.2 Mains terminal disturbance voltage.....	16
6.3.3 Electromagnetic radiation disturbance .....	17
6.3.4 Harmonics, voltage fluctuations and flicker .....	17
6.3.5 Output current ripple.....	19
7 Immunity tests .....	19
7.1 Classification for immunity tests.....	19
7.1.1 Applicability of tests.....	19
7.1.2 Category 1 equipment.....	19
7.1.3 Category 2 equipment.....	19
7.2 Test conditions .....	19
7.3 Immunity performance criteria.....	20
7.3.1 Performance criterion A .....	20
7.3.2 Performance criterion B .....	20
7.3.3 Performance criterion C.....	20

7.4	Immunity levels .....	20
8	Documentation for the purchaser/user .....	22
Annex A (informative)	Installation and use .....	24
A.1	General.....	24
A.2	Assessment of area .....	24
A.3	Assessment of welding installation.....	24
A.4	Mitigation measures .....	25
A.4.1	Public supply system .....	25
A.4.2	Maintenance of the arc welding equipment .....	25
A.4.3	Welding cables .....	25
A.4.4	Equipotential bonding .....	25
A.4.5	Earthing of the workpiece .....	25
A.4.6	Screening and shielding .....	25
Annex B (informative)	Limits .....	26
B.1	General.....	26
B.2	Mains terminal disturbance voltage limits .....	26
B.3	Electromagnetic radiation disturbance limits .....	27
B.4	Harmonic current limits .....	28
B.5	Limits for voltage fluctuations and flicker.....	30
Annex C (informative)	Symbols.....	31
Bibliography.....		32
Figure 1 – Test set-up 1 for arc welding equipment.....		11
Figure 2 – Test set-up 2 for portable arc welding equipment.....		12
Figure 3 – Top view of test setup as shown in Figure 1 .....		12
Figure 4 – Overview of harmonic requirements for supply current up to 75 A .....		18
Figure 5 – Overview of flicker requirements .....		18
Table 1 – Immunity levels – Enclosure .....		21
Table 2 – Immunity levels – AC input power port.....		21
Table 3 – Immunity levels – Ports for measurement and control.....		22
Table 4 – Output current ripple limits for Class B arc welding power sources .....		19
Table B.1 – Mains terminal disturbance voltage limits, idle state .....		26
Table B.2 – Mains terminal disturbance voltage limits, load conditions.....		26
Table B.3 – Electromagnetic radiation disturbance limits, idle state .....		27
Table B.4 – Electromagnetic radiation disturbance limits, load conditions .....		27
Table B.5 – Maximum permissible harmonic current for equipment for non-professional use with input current $I_{1\max} \leq 16$ A .....		28
Table B.6 – Current emission limits for equipment with $I_{1\max} \leq 75$ A other than balanced three-phase equipment .....		28
Table B.7 – Current emission limits for balanced three-phase equipment with $I_{1\max} \leq 75$ A29		
Table B.8 – Current emission limits for balanced three-phase equipment with $I_{1\max} \leq 75$ A under specified conditions (a, b, c) .....		29
Table B.9 – Current emission limits for balanced three-phase equipment with $I_{1\max} \leq 75$ A under specified conditions (d, e, f) .....		29

Table B.10 – Limits for arc welding equipment with $I_{1\max} \leq 75$ A .....	30
Table C.1 – Symbols to describe EMC properties .....	31

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### ARC WELDING EQUIPMENT –

### Part 10: Electromagnetic compatibility (EMC) requirements

#### FOREWORD

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**This Consolidated version of IEC 60974-10 bears the edition number 3.1. It consists of the third edition (2014-02) [documents 26/519/FDIS and 26/526/RVD] and its amendment 1 (2015-06) [documents 26/549/CDV and 26/560/RVC]. The technical content is identical to the base edition and its amendment.**

**This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.**

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

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

- inclusion of optional use of a decoupling network and a load outside the test chamber;
- inclusion of an alternative test setup for portable equipment;
- inclusion of test conditions for complex controls, liquid cooling systems and arc striking and stabilizing devices;
- update of the applicable limits related to the updated reference to CISPR 11;
- exclusion of the use of narrow band relaxations for RF emission limits;
- update of the applicable limits for harmonics and flicker and inclusion of flow-charts related to the updated reference to IEC 61000-3-11 and IEC 61000-3-12;
- update of the requirements for voltage dips related to the updated reference to IEC 61000-4-11 and IEC 61000-4-34;
- update of the informative annex for installation and use;
- inclusion of symbols to indicate the RF equipment class and restrictions for use.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The list of all the parts of the IEC 60974 series, under the general title *Arc welding equipment*, can be found on the IEC web site.

The committee has decided that the contents of the base publication and its amendment 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 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.

This standard is applicable to equipment for arc welding and allied processes, including power sources and ancillary equipment, for example wire feeders, liquid cooling systems and arc striking and stabilizing devices.

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

NOTE 2 This standard 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 type tested in accordance with, and which has met the requirements of, this standard is considered to be in compliance for all applications.

#### 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 60050 (all parts), *International Electrotechnical Vocabulary* (available at <<http://www.electropedia.org>>)

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

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

IEC 61000-3-2:2005, *Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current  $\leq 16$  A per phase)*  
Amendment 1:2008  
Amendment 2:2009

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  $\leq 16$  A per phase and not subject to conditional connection*

IEC 61000-3-11:2000, *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  $\leq 75$  A and subject to conditional connection*