



**SLOVENSKI STANDARD**  
**SIST EN 60974-1:2005**  
**01-december-2005**

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**SIST EN 60974-1:2000**

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Arc welding equipment -- Part 1: Welding power sources

Lichtbogenschweißeinrichtungen -- Teil 1: Schweißstromquellen

Matériel de soudage à l'arc -- Partie 1: Sources de courant de soudage  
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**Ta slovenski standard je istoveten z: EN 60974-1:2005**

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**ICS:**

25.160.30      Varilna oprema      Welding equipment

**SIST EN 60974-1:2005**      **en**

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EUROPEAN STANDARD

**EN 60974-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2005

ICS 25.160

Supersedes EN 60974-1:1998 + A1:2000 + A2:2003

English version

**Arc welding equipment**  
**Part 1: Welding power sources**  
(IEC 60974-1:2005)

Matériel de soudage à l'arc  
Partie 1: Sources de courant de soudage  
(CEI 60974-1:2005)

Lichtbogenschweißeinrichtungen  
Teil 1: Schweißstromquellen  
(IEC 60974-1:2005)

This European Standard was approved by CENELEC on 2005-10-01. 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 Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

**CENELEC**

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of document 26/307/FDIS, future edition 3 of IEC 60974-1, prepared by IEC TC 26, Electric welding, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60974-1 on 2005-10-01.

This European Standard supersedes EN 60974-1:1998 + A1:2000 + A2:2003.

The significant changes with respect to EN 60974-1:1998 are the following:

- the scope includes relationship to other parts of EN 60974;
- environmental conditions were changed (see 4.a and 4.e);
- conformity of components is given (see 5.3);
- the sequence of type test was changed (see 5.4);
- more precise requirements for measuring the no-load voltage during routine test are given (see 5.5d);
- creepage values for printed circuit boards are implemented (see Table 2);
- requirements for enclosures are changed (see 6.2.1);
- requirements for primary leakage current are included (see 6.3.7 and Annex N);
- requirements for engine driven power sources are changed (see 7.1.2 and 7.3.2);
- requirements for supply circuit terminals are changed (see 10.4.3 and 10.4.4);
- requirements for cable anchorage are changed (see 10.5);
- requirements for coupling devices are changed (see 10.9);
- standard characteristic for plasma welding is included (11.2.6);
- requirements for welding cables are added (see 11.7);
- requirements for plastic material used as enclosure materials are added (see 14.2.1);
- requirements for manual handling are added (see 14.3.2);
- existing ISO symbols and labels are taken into account (see 15.3 and 17.2).

The following dates were fixed:

- |  |       |            |
|--|-------|------------|
| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2006-07-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2008-10-01 |

Annex ZA has been added by CENELEC.

## Endorsement notice

The text of the International Standard IEC 60974-1:2005 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 60085	NOTE	Harmonized as EN 60085:2004 (not modified).
IEC 60204-1	NOTE	Harmonized as EN 60204-1:1997 (not modified).
IEC 62079	NOTE	Harmonized as EN 62079:2001 (not modified).
IEC 62081	NOTE	Harmonized as CLC/TS 62081:2002 (not modified).

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## Annex ZA (normative)

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

The following referenced documents are indispensable for the application 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 Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60038 (mod)	- <sup>1)</sup>	Nominal voltages for low-voltage public electricity supply systems	HD 472 S1 + corr. February	1989 <sup>2)</sup> 2002
IEC 60050-151	- <sup>1)</sup>	International Electrotechnical Vocabulary (IEV) Part 151: Electrical and magnetic devices	-	-
IEC 60050-851	- <sup>1)</sup>	Chapter 851: Electric welding	-	-
IEC 60112	- <sup>1)</sup>	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	2003 <sup>2)</sup>
IEC 60245-6	- <sup>1)</sup>	Rubber insulated cables - Rated voltages up to and including 450/750 V Part 6: Arc welding electrode cables	-	-
IEC 60309-1	- <sup>1)</sup>	Plugs, socket-outlets and couplers for industrial purposes Part 1: General requirements	EN 60309-1 + A11	1999 <sup>2)</sup> 2004
IEC 60417	database	Graphical symbols for use on equipment	-	-
IEC 60445	- <sup>1)</sup>	Basic and safety principles for man-machine interface, marking and identification - Identification of equipment terminals and of terminations of certain designated conductors, including general rules for an alphanumeric system	EN 60445	2000 <sup>2)</sup>
IEC 60529	- <sup>1)</sup>	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 <sup>2)</sup> 1993

1) Undated reference.

2) Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60664-1	1992	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests		
+ A1	2000			
+ A2	2002		EN 60664-1	2003
IEC 60664-3	- <sup>1)</sup>	Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2003 <sup>2)</sup>
IEC 60695-11-10	- <sup>1)</sup>	Fire hazard testing Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	1999 <sup>2)</sup>
IEC 60974-7	- <sup>1)</sup>	Arc welding equipment Part 7: Torches	EN 60974-7	2005 <sup>2)</sup>
IEC 60974-12	- <sup>1)</sup>	Part 12: Coupling devices for welding cables	EN 60974-12	2005 <sup>2)</sup>
IEC 61140	- <sup>1)</sup>	Protection against electric shock - Common aspects for installation and equipment	EN 61140	2002 <sup>2)</sup>
IEC 61558-2-4	- <sup>1)</sup>	Safety of power transformers, power supply units and similar Part 2-4: Particular requirements for isolating transformers for general use	EN 61558-2-4	1997 <sup>2)</sup>
IEC 61558-2-6	- <sup>1)</sup>	Part 2-6: Particular requirements for safety isolating transformers for general use	EN 61558-2-6	1997 <sup>2)</sup>
CISPR 11 (mod)	- <sup>1)</sup>	Industrial, scientific and medical (ISM) radio-frequency equipment - Radio disturbance characteristics - Limits and methods of measurement	EN 55011	1998 <sup>2)</sup>

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INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC

60974-1

Troisième édition  
Third edition  
2005-07

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**Matériel de soudage à l'arc –**

**Partie 1:  
Sources de courant de soudage**

**STANDARD PREVIEW**  
**Arc welding equipment –**  
**(standards.iteh.ai)**

**Part 1:  
Welding power sources**

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## ARC WELDING EQUIPMENT –

## Part 1: Welding power sources

## 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 60974-1 has been prepared by IEC technical committee 26: Electric welding.

This third edition cancels and replaces the second edition published in 1998, amendment 1 (2000) and amendment 2 (2003) and constitutes a technical revision.

The significant changes with respect to the previous edition are the following:

- The scope includes relationship to other parts of IEC 60974.
- Environmental conditions were changed (see 4.a and 4.e).
- Conformity of components is given (see 5.3).
- Sequence of type test was changed (see 5.4).
- More precise requirements for measuring the no-load voltage during routine test are given (see 5.5d).

- Creepage values for printed circuit boards are implemented (see Table 2).
- Requirements for enclosures are changed (see 6.2.1).
- Requirements for primary leakage current are included (see 6.3.7 and Annex N).
- Requirements for engine driven power sources are changed (see 7.1.2 and 7.3.2).
- Requirements for supply circuit terminals are changed (see 10.4.3 and 10.4.4).
- Requirements for cable anchorage are changed (see 10.5).
- Requirements for coupling devices are changed (see 10.9).
- Standard characteristic for plasma welding is included (11.2.6).
- Requirements for welding cables are added (see 11.7).
- Requirements for plastic material used as enclosure materials are added (see 14.2.1).
- Requirements for manual handling are added (see 14.3.2).
- Taken care of existing ISO symbols and labels (see 15.3 and 17.2).

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

FDIS	Report on voting
26/307/FDIS	26/311/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.

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 <sup>1</sup>
- 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 <sup>1</sup>

<sup>1</sup> Under consideration.