

INTERNATIONAL STANDARD

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**Arc welding equipment –
Part 1: Welding power sources**

**Matériel de soudage à l'arc –
Partie 1: Sources de courant de soudage**



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CONTENTS

FOREWORD.....	9
1 Scope	11
2 Normative references	11
3 Terms and definitions	12
3.1 General terms	12
3.2 Terms related to battery systems	21
4 Environmental conditions.....	24
5 Tests	25
5.1 Test conditions	25
5.2 Measuring instruments.....	25
5.3 Conformity of components	25
5.4 Type tests.....	26
5.5 Routine tests.....	26
6 Protection against electric shock	27
6.1 Insulation	27
6.1.1 General	27
6.1.2 Clearances	28
6.1.3 Creepage distances	30
6.1.4 Insulation resistance.....	32
6.1.5 Dielectric strength.....	32
6.2 Protection against electric shock in normal service (direct contact)	34
6.2.1 Protection provided by the enclosure	34
6.2.2 Capacitors	34
6.2.3 Automatic discharge of supply circuit capacitors	35
6.2.4 Isolation of the welding circuit.....	35
6.2.5 Welding circuit touch current	35
6.2.6 Touch current in normal condition	36
6.3 Protection against electric shock in case of a fault condition (indirect contact)	37
6.3.1 Protective provisions	37
6.3.2 Isolation between windings of the supply circuit and the welding circuit	37
6.3.3 Internal conductors and connections.....	37
6.3.4 Additional requirements for plasma cutting systems.....	38
6.3.5 Movable coils and cores	38
6.3.6 Touch current in fault condition.....	38
7 Thermal requirements.....	39
7.1 Heating test	39
7.1.1 Test conditions	39
7.1.2 Tolerances of the test parameters	39
7.1.3 Duration of test.....	40
7.2 Temperature measurement	40
7.2.1 Measurement conditions	40
7.2.2 Surface temperature sensor.....	40
7.2.3 Resistance	40
7.2.4 Embedded temperature sensor	41
7.2.5 Determination of the ambient air temperature	41

7.2.6	Recording of temperatures	41
7.3	Limits of temperature rise	41
7.3.1	Windings, commutators and slip-rings.....	41
7.3.2	External surfaces.....	42
7.3.3	Other components	43
7.4	Loading test.....	43
7.5	Commutators and slip-rings	44
8	Thermal protection.....	44
8.1	General requirements	44
8.2	Construction	44
8.3	Location.....	44
8.4	Operating capacity.....	44
8.5	Operation.....	45
8.6	Resetting	45
8.7	Indication	45
9	Abnormal operation	45
9.1	General requirements	45
9.2	Stalled fan test.....	46
9.3	Short circuit test.....	46
9.4	Overload test	47
10	Connection to the supply network	47
10.1	Supply voltage	47
10.2	Multi-supply voltage	47
10.3	Means of connection to the supply circuit.....	47
10.4	Marking of terminals	48
10.5	Protective circuit	48
10.5.1	Continuity requirement.....	48
10.5.2	Type test	49
10.5.3	Routine test	49
10.6	Cable anchorage.....	50
10.7	Inlet openings	51
10.8	Supply circuit on/off switching device	51
10.9	Supply cables	52
10.10	Supply coupling device (attachment plug)	52
11	Output	53
11.1	Rated no-load voltage	53
11.1.1	Rated no-load voltage for use in environments with increased risk of electric shock	53
11.1.2	Rated no-load voltage for use in environments without increased risk of electric shock	53
11.1.3	Rated no-load voltage for the use with mechanically held torches with increased protection for the operator	53
11.1.4	Rated no-load voltage for special processes for example plasma cutting	53
11.1.5	Additional requirements	54
11.1.6	Measuring circuits	55
11.2	Type test values of the conventional load voltage	56
11.2.1	Manual metal arc welding with covered electrodes.....	56
11.2.2	Tungsten inert gas	56
11.2.3	Metal inert/active gas and flux cored arc welding	56

11.2.4	Submerged arc welding	56
11.2.5	Plasma cutting	56
11.2.6	Plasma welding	56
11.2.7	Plasma gouging	56
11.2.8	Additional requirements	56
11.3	Mechanical switching devices used to adjust output	57
11.4	Welding circuit connections	57
11.4.1	Protection against unintentional contact	57
11.4.2	Location of coupling devices	57
11.4.3	Outlet openings	57
11.4.4	Three-phase multi-operator welding transformer	57
11.4.5	Marking	58
11.4.6	Connections for plasma cutting torches	58
11.5	Power supply to external devices connected to the welding circuit	58
11.6	Auxiliary power supply	58
11.7	Welding cables	59
12	Control circuits	59
12.1	General requirement	59
12.2	Isolation of control circuits	59
12.3	Working voltages of remote control circuits	59
13	Hazard reducing device	60
13.1	General requirements	60
13.2	Types of hazard reducing devices	60
13.2.1	Voltage reducing device	60
13.2.2	Switching device for AC to DC	60
13.3	Requirements for hazard reducing devices	60
13.3.1	Disabling the hazard reducing device	60
13.3.2	Interference with operation of a hazard reducing device	61
13.3.3	Indication of satisfactory operation	61
13.3.4	Fail to a safe condition	61
14	Mechanical provisions	61
14.1	General requirements	61
14.2	Enclosure	61
14.2.1	Enclosure materials	61
14.2.2	Enclosure strength	62
14.3	Handling means	62
14.3.1	Mechanised handling	62
14.3.2	Manual handling	62
14.4	Drop withstand	63
14.5	Tilting stability	63
15	Rating plate	63
15.1	General requirements	63
15.2	Description	64
15.3	Contents	65
15.4	Tolerances	68
15.5	Direction of rotation	68
16	Adjustment of the output	68
16.1	Type of adjustment	68

16.2	Marking of the adjusting device	69
16.3	Indication of current or voltage control	69
17	Instructions and markings	70
17.1	Instructions	70
17.2	Markings	71
Annex A (informative)	Nominal voltages of supply networks	72
Annex B (informative)	Example of a combined dielectric test	73
Annex C (normative)	Unbalanced load in case of AC tungsten inert-gas welding power sources	74
C.1	General	74
C.2	Unbalanced load	74
C.3	Example for an unbalanced load	75
Annex D (informative)	Extrapolation of temperature to time of shutdown	76
Annex E (normative)	Construction of supply circuit terminals	77
E.1	Size of terminals	77
E.2	Connections at the terminals	77
E.3	Construction of the terminals	78
E.4	Fixing of the terminals	78
Annex F (informative)	Cross-reference to non-SI units	79
Annex G (informative)	Suitability of supply network for the measurement of the true r.m.s. value of the supply current	80
Annex H (informative)	Plotting of static characteristics	81
H.1	General	81
H.2	Method	81
H.3	Analysis of the results	81
Annex I (normative)	Test methods for a 10 Nm impact	82
I.1	Pendulum impact hammer	82
I.2	Free fall spherical steel weight	83
Annex J (normative)	Thickness of sheet metal for enclosures	84
Annex K (informative)	Examples of rating plates	87
Annex L (informative)	Graphical symbols for arc welding equipment	94
L.1	General	94
L.2	Use of symbols	94
L.2.1	General	94
L.2.2	Selection of symbols	94
L.2.3	Size of symbols	94
L.2.4	Use of colour	94
L.3	Symbols	95
L.3.1	General	95
L.3.2	Letter symbols	95
L.3.3	Graphical symbols	96
L.4	Examples of combinations of symbols	116
L.5	Examples of control panels	118
Annex M (informative)	Efficiency and idle state power measurement	121
M.1	Measuring efficiency	121
M.2	Measuring idle state power	121
Annex N (normative)	Touch current measurement in fault condition	123

Annex O (normative) Battery-powered welding power sources	128
O.1 General.....	128
O.4 Environmental conditions	129
O.5 Tests	129
O.5.1 Test conditions	129
O.5.3 Conformity of components	130
O.6 Protection against electric shock.....	131
O.6.1 Insulation.....	131
O.6.2 Protection against electric shock in normal service	132
O.7 Thermal requirements	133
O.7.1 Heating test	133
O.7.2 Temperature measurement.....	134
O.7.4 Loading test.....	134
O.7.201 Normal charging of lithium-ion systems.....	134
O.8 Thermal protection	135
O.8.1 General requirements	135
O.8.4 Operating capacity.....	135
O.9 Abnormal operation.....	135
O.9.1 General requirements	135
O.9.2 Stalled fan test	136
O.9.3 Short circuit test	136
O.9.4 Overload test.....	136
O.9.201 Welding power source – abnormal conditions	136
O.9.202 Welding circuit components – abnormal conditions	137
O.9.203 Lithium-ion charging systems – abnormal conditions	137
O.9.204 Lithium-ion battery short circuit.....	138
O.9.205 Batteries other than lithium-ion – overcharging	139
O.9.206 Battery pack disconnection	139
O.9.207 General purpose batteries	139
O.10 Connection to the supply network	139
O.10.5 Protective circuit.....	140
O.10.8 Supply circuit on/off switching device.....	140
O.14 Mechanical provisions.....	141
O.14.1 General requirements	141
O.14.2 Enclosure	141
O.14.4 Drop withstand	141
O.15 Rating plate	142
O.15.3 Contents.....	142
O.17 Instructions and markings	144
O.17.1 Instructions.....	144
O.17.2 Markings.....	145
Bibliography.....	146
Figure 1 – Example of insulation configuration for Class I equipment.....	28
Figure 2 – Measurement of welding circuit touch current.....	36
Figure 3 – Measurement of touch current in normal condition	36
Figure 4 – Measurement of r.m.s. values	55
Figure 5 – Measurement of peak values.....	55

Figure 6 – Principle of the rating plate	64
Figure B.1 – Combined high-voltage transformers	73
Figure C.1 – Voltage and current during AC tungsten inert-gas welding	74
Figure C.2 – Unbalanced voltage during AC tungsten inert-gas welding	75
Figure C.3 – AC welding power source with unbalanced load	75
Figure I.1 – Test set-up	82
Figure K.1 – Single-phase transformer	87
Figure K.2 – Three-phase rotating frequency converter	88
Figure K.3 – Subdivided rating plate: single-/three-phase transformer rectifier	89
Figure K.4 – Engine-generator-rectifier	90
Figure K.5 – Single-/three-phase inverter type	91
Figure K.6 – Battery powered welding power source with integral battery	92
Figure K.7 – Battery powered welding power source with detachable / separable battery	93
Figure L.1 – Input voltage power switch	119
Figure L.2 – Arc force control potentiometer	119
Figure L.3 – Remote receptacle and selector switches	119
Figure L.4 – Terminals with inductance selector for MIG/MAG welding	119
Figure L.5 – Process switch (MMA, TIG, MIG)	120
Figure L.6 – Selector switch on AC/DC equipment	120
Figure L.7 – Panel indicator lights (overheat, fault, arc striking, output voltage)	120
Figure L.8 – Setting pulsing parameters using digital display	120
Figure N.1 – Measuring network for weighted touch current	123
Figure N.2 – Diagram for touch current measurement on fault condition at operating temperature for single-phase connection of appliances other than those of class II	125
Figure N.3 – Diagram for touch current measurement on fault condition for three-phase four-wire system connection of appliances other than those of class II	127
Figure O.1 – Marking of battery voltage class B electric components	145
Table 1 – Minimum clearances for overvoltage category III	29
Table 2 – Minimum creepage distances	31
Table 3 – Insulation resistance	32
Table 4 – Dielectric test voltages	33
Table 5 – Minimum distance through insulation	37
Table 6 – Temperature limits for windings, commutators and slip-rings	42
Table 7 – Temperature limits for external surfaces	43
Table 8 – Cross-section of the output short-circuit conductor	46
Table 9 – Current and time requirements for protective circuits	49
Table 10 – Minimum cross-sectional area of the external protective copper conductor	49
Table 11 – Verification of continuity of the protective circuit	50
Table 12 – Pull	51
Table 13 – Summary of allowable rated no-load voltages	54
Table 14 – Hazard reducing device requirements	60

Table E.1 – Range of conductor dimensions to be accepted by the supply circuit terminals.....	77
Table F.1 – Cross-reference for mm ² to American wire gauge (AWG).....	79
Table I.1 – Angle of rotation θ to obtain 10 Nm impact	82
Table I.2 – Mass of the free fall weight and height of the free fall	83
Table J.1 – Minimum thickness of sheet metal for steel enclosures	85
Table J.2 – Minimum thickness of sheet metal for enclosures of aluminium, brass or copper	86
Table L.1 – Letters used as symbols	95

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ARC WELDING EQUIPMENT –**Part 1: Welding power sources****FOREWORD**

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

This fifth edition cancels and replaces the fourth edition published in 2012 and constitutes a technical revision.

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

- improvement of Figure 1 (6.1.1);
- modification of Table 3 (6.1.4);
- description of energy efficiency measurements in Annex M;
- inclusion of battery supplied welding power sources in the scope. Requirements therefore are described in Annex O.

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

FDIS	Report on voting
26/610/FDIS	26/613/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.

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ARC WELDING EQUIPMENT –

Part 1: Welding power sources

1 Scope

This part of IEC 60974 is applicable to power sources for arc welding and allied processes designed for **industrial and professional use**, and supplied by a voltage not exceeding 1 000 V, battery supplied or driven by mechanical means.

This document specifies safety and performance requirements of welding power sources and **plasma cutting systems**.

This document is not applicable to limited duty arc welding and cutting power sources which are designed mainly for use by laymen and designed in accordance with IEC 60974-6.

This document includes requirements for battery-powered welding power sources and battery packs, which are given in Annex O.

This document is not applicable to testing of power sources during periodic maintenance or after repair.

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

NOTE 2 AC systems having a nominal voltage between 100 V and 1 000 V are given in Table 1 of IEC 60038:2009.

NOTE 3 This document does not include electromagnetic compatibility (EMC) requirements.

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 60050-151, *International Electrotechnical Vocabulary – Part 151: Electrical and magnetic devices* (available at: <http://www.electropedia.org>)

IEC 60050-851, *International Electrotechnical Vocabulary – Part 851: Electric welding* (available at: <http://www.electropedia.org>)

IEC 60245-6, *Rubber insulated cables – Rated voltages up to and including 450/750 V – Part 6: Arc welding electrode cables*

IEC 60417, *Graphical symbols for use on equipment* (available at: <http://www.graphical-symbols.info/equipment>)

IEC 60445, *Basic and safety principles for man-machine interface, marking and identification – Identification of equipment terminals, conductor terminations and conductors*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60664-3, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60695-11-10, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

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

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61558-2-4, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-4: Particular requirements and tests for isolating transformers and power supply units incorporating isolating transformers*

IEC 61558-2-6, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers*

IEC 62133-1:— 1, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 1: Nickel systems*

IEC 62133-2:— 2, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems*

ISO 7010:2011, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-151, IEC 60050-851, IEC 60664-1 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 General terms

3.1.1

welding power source

arc welding power source

equipment for supplying current and voltage and having the required characteristics suitable for arc welding and allied processes

Note 1 to entry: A **welding power source** can also supply services to other equipment and auxiliaries for example auxiliary power, cooling liquid, consumable arc welding electrode and gas to shield the arc and the welding area.

Note 2 to entry: This entry revises IEC 851-13-01, which will be updated.

¹ Under preparation. Stage at the time of publication: IEC CDV 62133-1:2015.

² Under preparation. Stage at the time of publication: IEC CDV 62133-2:2015.