



SLOVENSKI STANDARD

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SIST EN 50063:1996

Oprema za uporovno varjenje - 1. del: Varnostne zahteve za zasnovo, izdelavo in inštalacijo (IEC 62135-1:2008)

Resistance welding equipment -- Part 1: Safety requirements for the design, manufacture and the installation

Widerstandsschweißrichtungen -- Teil 1: Sicherheitsanforderungen für Entwurf, Herstellung und Errichtung

Matériels de soudage par résistance -- Partie 1: Exigences de sécurité pour la conception, la fabrication et l'installation

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EUROPEAN STANDARD
NORME EUROPÉENNE
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**Resistance welding equipment -
Part 1: Safety requirements for design, manufacture and installation
(IEC 62135-1:2008)**

Matériels de soudage par résistance -
Partie 1: Exigences de sécurité
pour la conception,
la fabrication et l'installation
(CEI 62135-1:2008)

Widerstandsschweißeinrichtungen -
Teil 1: Sicherheitsanforderungen
für die Konstruktion,
Herstellung und Errichtung
(IEC 62135-1:2008)

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This European Standard was approved by CENELEC on 2008-10-01. 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.

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CENELEC

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

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Foreword

The text of document 26/377/FDIS, future edition 1 of IEC 62135-1, prepared by IEC TC 26, Electric welding, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62135-1 on 2008-10-01.

This European standard supersedes EN 50063:1989 + corrigendum August 1990.

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) 2009-01-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2011-10-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62135-1:2008 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 60085:2008 (not modified).
IEC 60112	NOTE Harmonized as EN 60112:2003 (not modified).
IEC 60364	NOTE Harmonized in HD 384 / HD 60364 series (modified).
IEC 60990	NOTE Harmonized as EN 60990:1999 (not modified).

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 When 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 60204-1 (mod)	- ¹⁾	Safety of machinery - Electrical equipment of machines - Part 1: General requirements	EN 60204-1	2006 ²⁾
IEC 60364-4-41 (mod)	2005	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41 + corr. July	2007 2007
IEC 60364-6 (mod)	- ¹⁾	Low voltage electrical installations - Part 6: Verification	HD 60364-6	2007 ²⁾
IEC 60439-1	- ¹⁾	Low-voltage switchgear and controlgear assemblies - Part 1: Type-tested and partially type-tested assemblies	EN 60439-1	1999 ²⁾
IEC 60529	- ¹⁾	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 ²⁾ 1993
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60664-3	- ¹⁾	Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2003 ²⁾
IEC 61140	- ¹⁾	Protection against electric shock - Common aspects for installation and equipment	EN 61140	2002 ²⁾
ISO 669	- ¹⁾	Resistance welding - Resistance welding equipment - Mechanical and electrical requirements	-	-
ISO 5828	- ¹⁾	Resistance welding equipment - Secondary connecting cables with terminals connected to water-cooled lugs - Dimensions and characteristics	EN ISO 5828	2001 ²⁾
ISO 8205-1	- ¹⁾	Water-cooled secondary connection cables for resistance welding - Part 1: Dimensions and requirements for double-conductor connection cables	EN ISO 8205-1	2002 ²⁾

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>
ISO 8205-2	- ¹⁾	Water-cooled secondary connection cables for resistance welding - Part 2: Dimensions and requirements for single-conductor connection cables	EN ISO 8205-2	2002 ²⁾
ISO 12100-1	- ¹⁾	Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology	EN ISO 12100-1	2003 ²⁾
ISO 12100-2	- ¹⁾	Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles	EN ISO 12100-2	2003 ²⁾
ISO 13849-1	- ¹⁾	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design	EN ISO 13849-1	2006 ²⁾
ISO 14121-1	- ¹⁾	Safety of machinery - Risk assessment - Part 1: Principles	EN ISO 14121-1	2001 ²⁾

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IEC 62135-1

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Resistance welding equipment –
Part 1: Safety requirements for design, manufacture and installation**

**Matériels de soudage par résistance –
Partie 1: Exigences de sécurité pour la conception, la fabrication et l'installation**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RESISTANCE WELDING EQUIPMENT –**Part 1: Safety requirements for design,
manufacture and installation**

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 62135-1 has been prepared by IEC technical committee 26: Electric welding.

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

FDIS	Report on voting
26/377/FDIS	26/383/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.

The list of all the parts of the IEC 62135 series, under the general title *Resistance welding equipment*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

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RESISTANCE WELDING EQUIPMENT –

Part 1: Safety requirements for design, manufacture and installation

1 Scope

This part of IEC 62135 applies to equipment for resistance welding and allied processes and includes single and multiple welding stations which may be manually or automatically loaded and/or started.

This standard covers stationary and portable equipment.

It specifies safety requirements for design, manufacture and installation.

To comply with this standard, all safety risks involved in loading, feeding, operating and unloading the equipment, where applicable, should be assessed and the requirements of related standards should be observed.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 62135. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60204-1, *Safety of machinery – Electrical equipment of machines – Part 1: General requirements*

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60364-6, *Low-voltage electrical installations – Part 6: Verification*

IEC 60439-1, *Low-voltage switchgear and controlgear assemblies – Part 1: Type-tested and partially type-tested assemblies*

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

ISO 669, *Resistance welding – Resistance welding equipment – Mechanical and electrical requirements*

ISO 5828, *Resistance welding equipment – Secondary connecting cables with terminals connected to water-cooled lugs – Dimensions and characteristics*

ISO 8205-1, *Water-cooled secondary connection cables for resistance welding – Part 1: Dimensions and requirements for double-conductor connection cables*

ISO 8205-2, *Water-cooled secondary connection cables for resistance welding – Part 2: Dimensions and requirements for single-conductor connection cables*

ISO 12100-1, *Safety of machinery – Basic concepts, general principles for design – Part 1: Basic terminology, methodology*

ISO 12100-2, *Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles*

ISO 13849-1, *Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design*

ISO 14121-1, *Safety of machinery – Risk assessment – Part 1: Principles*

3 Terms and definitions

For the purposes of this document, the following terms and definitions, together with those given in ISO 669, IEC 60664-1 and IEC 60204-1, apply.

3.1

equipment for resistance welding and allied processes

equipment associated with carrying out the processes of resistance welding or allied processes consisting of, for example, power source, electrodes, tooling and associated control equipment

NOTE 1 It may be a separate unit or part of a complex machine.

NOTE 2 The term "resistance welding equipment" is used in the following text.

3.2

processes allied to resistance welding

processes carried out on machines comparable to resistance welding equipment considered as allied to resistance welding, for example, resistance brazing, soldering or heating

3.3

type test

test of one or more devices made to a given design, to check if these devices comply with the requirements of the standard concerned

[IEV 851-02-09]

3.4

routine test

test made on each individual device during or after manufacture to check if it complies with the requirements of the standard concerned or the criteria specified

[IEV 851-02-10]

3.5

welding circuit

conductive material through which the welding current is intended to flow

3.6**control circuit**

circuit for the operational control of welding equipment, and/or for protection of the power circuits

3.7**conventional value**

standardized value that is used as a measure of a parameter for the purposes of comparison, calibration, testing, etc.

NOTE Conventional values do not necessarily apply during the actual welding process.

3.8**rated value**

value assigned, generally by the manufacturer, for a specified operating condition of a component, device or equipment

3.9**rating**

set of rated values and operating conditions

3.10**hand-held equipment**

resistance welding equipment with built-in or external transformer, which is intended to be held in the hand during use, suspended or not

3.11**portable equipment**

resistance welding equipment that is connected to the mains supply by means of a plug.

3.12**stationary equipment**

resistance welding equipment permanently connected to the mains supply

3.13**material group**

materials are separated into four groups by their comparative tracking index (CTI) values, as follows:

Material group I	600	≤	CTI		
Material group II	400	≤	CTI	<	600
Material group IIIa	175	≤	CTI	<	400
Material group IIIb	100	≤	CTI	<	175

The CTI values above refer to values in accordance with IEC 60112.

NOTE For inorganic insulating materials, for example, glass or ceramics, which do not track, creepage distances need not be greater than their associated clearance for the purpose of insulation coordination.

3.14**thermal equilibrium**

state reached when the observed temperature rise of any part of the welding equipment does not exceed 2 K/h

3.15**thermal protection**

system intended to ensure the protection of all or part of the welding equipment against excessive temperatures resulting from certain conditions of thermal overload