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PROJEKTEERIMISE, VALMISTAMISE JA PAIGALDAMISE
OHUTUSNÕUDED

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 62135-1:2015 sisaldab Euroopa standardi EN 62135-1:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 62135-1:2015 consists of the English text of the European standard EN 62135-1:2015.
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English Version

**Resistance welding equipment - Part 1: Safety requirements for
design, manufacture and installation
(IEC 62135-1:2015)**

Matériels de soudage par résistance - Partie 1: Exigences
de sécurité pour la conception, la fabrication et l'installation
(IEC 62135-1:2015)

Widerstandsschweißeinrichtungen - Teil 1:
Sicherheitsanforderungen für die Konstruktion, Herstellung
und Errichtung
(IEC 62135-1:2015)

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European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 26/558/FDIS, future edition 2 of IEC 62135-1, prepared by IEC/TC 26 "Electric welding" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62135-1:2015.

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) 2016-03-11
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-06-11

This document supersedes EN 62135-1:2008.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 62135-1:2015 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.
IEC 60112	NOTE	Harmonized as EN 60112.
IEC 60364	NOTE	Harmonized in HD 384 / HD 60364 series (partly modified).
IEC 60990	NOTE	Harmonized as EN 60990.
IEC 62135-2	NOTE	Harmonized as EN 62135-2.
ISO 5826	NOTE	Harmonized as EN ISO 5826.
ISO 5828	NOTE	Harmonized as EN ISO 5828.
ISO 8205-1	NOTE	Harmonized as EN ISO 8205-1.
ISO 8205-2	NOTE	Harmonized as EN ISO 8205-2.

ISO 12100	NOTE	Harmonized as EN ISO 12100.
ISO 13732-1	NOTE	Harmonized as EN ISO 13732-1.
IEC 13732	NOTE	Harmonized in EN 13732 series (not modified).
ISO 14121-1 ¹⁾	NOTE	Harmonized as EN ISO 14121-1 ¹⁾ .

1) Withdrawn.

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60204-1 (mod)	2005	Safety of machinery - Electrical equipment of machines -	EN 60204-1	2006
-	-	Part 1: General requirements	+ corrigendum Feb.	2010
IEC 60364-4-41 (mod)	2005	Low-voltage electrical installations -	HD 60364-4-41	2007
-	-	Part 4-41: Protection for safety -	+ corrigendum Jul.	2007
		Protection against electric shock		
IEC 60364-6	-	Low voltage electrical installations -	HD 60364-6	-
		Part 6: Verification		
IEC 60417-DB	-	Graphical symbols for use on equipment	-	-
IEC 60445	-	Basic and safety principles for man-machine interface, marking and identification - Identification of equipment terminals, conductor terminations and conductors	EN 60445	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems -	EN 60664-1	2007
		Part 1: Principles, requirements and tests		
IEC 60664-3	-	Insulation coordination for equipment within low-voltage systems -	EN 60664-3	-
		Part 3: Use of coating, potting or moulding for protection against pollution		
IEC 61140	-	Protection against electric shock -	EN 61140	-
		Common aspects for installation and equipment		

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 669	-	Resistance welding - Resistance welding equipment - Mechanical and electrical requirements	-	-
ISO 13849-1	-	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design	EN ISO 13849-1	-

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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 part of IEC 62135 covers stationary and portable equipment.

This part of IEC 62135 specifies electrical safety requirements for design, manufacture and installation. It does not cover all non-electrical safety requirements (e.g. noise, vibration).

This part of IEC 62135 does not include electromagnetic compatibility (EMC) requirements, which are included in IEC 62135-2.

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 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 60204-1:2005, *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 60417-DB:2011¹, *Graphical symbols for use on 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*

¹ “DB” refers to the IEC on-line database.

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 669, IEC 60664-1 and IEC 60204-1, as well as the following, 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 to entry: It may be a separate unit or part of a complex machine.

Note 2 to entry: 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

[SOURCE: IEC 60050-851:2008, 851-12-05]

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

[SOURCE: IEC 60050-851:2008, 851-12-06]

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