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Varnost pri električnih grelnih inštalacijah in elektromagnetni obdelavi - 1. del: Splošne zahteve (IEC 60519-1:2020)

Safety in installations for electroheating and electromagnetic processing - Part 1:
General requirements (IEC 60519-1:2020)

Sicherheit in Elektrowärmeanlagen und Anlagen für elektromagnetische
Bearbeitungsprozesse - Teil 1: Allgemeine Anforderungen (IEC 60519-1:2020)

Sécurité dans les installations destinées au traitement électrothermique et
électromagnétique - Partie 1: Exigences générales (IEC 60519-1:2020)

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**Safety in installations for electroheating and electromagnetic
processing - Part 1: General requirements
(IEC 60519-1:2020)**

Sécurité dans les installations destinées au traitement
électrothermique et électromagnétique - Partie 1: Exigences
générales
(IEC 60519-1:2020)

Sicherheit in Elektroerwärmungsanlagen und Anlagen für
elektromagnetische Bearbeitungsprozesse - Teil 1:
Allgemeine Anforderungen
(IEC 60519-1:2020)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 60519-1:2020 (E)**European foreword**

The text of document 27/1121/FDIS, future edition 6 of IEC 60519-1, prepared by IEC/TC 27 "Industrial electroheating and electromagnetic processing" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60519-1:2020.

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) 2021-01-15
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-04-15

This document supersedes EN 60519-1:2015 and all of its amendments and corrigenda (if any).

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This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see Informative Annex ZZ, which is an integral part of this document.

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Endorsement notice

The text of the International Standard IEC 60519-1:2020 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 60079 series NOTE Harmonized as EN 60079 series
 IEC 60335 series NOTE Harmonized as EN 60335 series
 IEC 60519 series NOTE Harmonized as EN 60519 series
 IEC 60601 series NOTE Harmonized as EN 60601 series
 IEC 60974 series NOTE Harmonized as EN 60974 series
 IEC 61010 series NOTE Harmonized as EN 61010 series
 IEC 61140:2016 NOTE Harmonized as EN 61140:2016 (not modified)
 IEC 62226 series NOTE Harmonized as EN 62226 series
 IEC 62311 NOTE Harmonized as EN IEC 62311

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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 60071-1	2006	Insulation co-ordination - Part 1: Definitions, principles and rules	EN 60071-1	2006
+A1	2010		+A1	2010
IEC 60204-1	2016	Safety of machinery - Electrical equipment of machines - Part 1: General requirements	EN 60204-1	2018
IEC 60204-11	2018	Safety of machinery - Electrical equipment of machines - Part 11: Requirements for equipment for voltages above 1 000 V AC or 1 500 V DC and not exceeding 36 kV	EN IEC 60204-11	2019
-	-	SIST EN IEC 60519-1:2020	+corrigendum Feb.	2010
IEC 60228	2004	Conductors of insulated cables	EN 60228	2005
+ A1	2013		-	-
+ A2	2016		-	-
IEC 60335-1 (mod)	2010	Household and similar electrical appliances - Safety - Part 1: General requirements	EN 60335-1	2012
-	-		+A11	2014
			+A13	2017
			+A14	2019
+A1	2013		+A1	2019
+A2	2016		+A2	2019
IEC 60335-2-24	-	Household and similar electrical appliances - Safety - Part 2-24: Particular requirements for refrigerating appliances, ice-cream appliances and ice makers	EN 60335-2-24	2010
IEC 60335-2-89	-	Household and similar electrical appliances - Safety - Part 2-89: Particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant condensing unit or compressor	EN 60335-2-89	2010
-	-		+A1	2016
			+A2	2017
IEC 60364-1 (mod)	2005	Low-voltage electrical installations - Part 1: Fundamental principles, assessment of general characteristics, definitions	HD 60364-1	2008
-	-		+A11	2017
IEC 60364-4-41 (mod)	2005	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41	2017

EN IEC 60519-1:2020 (E)

-	-		+A11	2017
			+A12	2019
+A1	2017			
IEC 60364-4-42	2010	Low-voltage electrical installations - Part 4-42: Protection for safety - Protection against thermal effects		2011
+A1	2014		+A1	2015
IEC 60364-4-44 (mod)	2007	Low-voltage electrical installations - Part 4-44: Protection for safety - Protection against voltage disturbances and electromagnetic disturbances		2012
+A1 (mod)	2015		HD 60364-4-443	2016
+A2	2018			
IEC 60364-5-53	2001	Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control		-
+ A1 (mod)	2002		HD 60364-5-534	2016
+ A2 (mod)	2015			
IEC 60364-5-54	2011	Low-voltage electrical installations - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements and protective conductors		2011
-	-		+A11	2017
IEC 60398	2015	Installations for electroheating and electromagnetic processing - General performance test methods	IEC 60398	2015
IEC 60417	-	Graphical symbols for use on equipment		-
IEC 60445	2017	Basic and safety principles for man-machine interface marking and identification - Identification of equipment terminals, conductor terminations and conductors	EN 60445	2017
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
+ A1	1999		+A1	2000
+A2	2013		+A2	2013
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60825-1	2014	Safety of laser products - Part 1: Equipment classification and requirements	EN 60825-1	2014
IEC 60865-1	2011	Short-circuit currents - Calculation of effects - Part 1: Definitions and calculation methods	EN 60865-1	2012
IEC 60909-0	2016	Short-circuit currents in three-phase a.c. systems - Part 0: Calculation of currents	EN 60909-0	2016
IEC 60990	2016	Methods of measurement of touch current and protective conductor current	EN 60990	2016
IEC 61000-6-2	2016	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments	EN IEC 61000-6-2	2019
IEC 61000-6-7	2014	Electromagnetic compatibility (EMC) - Part 6-7: Generic standards - Immunity requirements for equipment intended to perform functions in a safety-related system (functional safety) in industrial locations	EN 61000-6-7	2015

IEC 61010-1	2010	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements	EN 61010-1	2010
+ A1	2016		+A1	2019
IEC 61082-1	2014	Preparation of documents used in electrotechnology - Part 1: Rules	EN 61082-1	2015
IEC 61310-1	2007	Safety of machinery - Indication, marking and actuation -- Part 1: Requirements for visual, acoustic and tactile signals	EN 61310-1	2008
IEC 61310-2	2007	Safety of machinery - Indication, marking and actuation -- Part 2: Requirements for marking	EN 61310-2	2008
IEC 61310-3	2007	Safety of machinery - Indication, marking and actuation -- Part 3: Requirements for the location and operation of actuators	EN 61310-3	2008
IEC 61439	series	Low-voltage switchgear and control gear assemblies	EN 61439	series
IEC 61508-1	2010	Functional safety of electrical/electronic/programmable electronic safety-related systems -- Part 1: General requirements	EN 61508-1	2010
IEC 61786-1	2013	Measurement of DC magnetic, AC magnetic and AC electric fields from 1 Hz to 100 kHz with regard to exposure of human beings - Part 1: Requirements for measuring instruments	EN 61786-1	2014
IEC 61786-2	2014 ¹⁾	Measurement of low-frequency magnetic and electric fields with regard to exposure of human beings - Part 2: Guidance for measurements		-
IEC 61936-1 (mod)	2010	Power installations exceeding 1 kV a.c. - Part 1: Common rules	EN 61936-1	2010
+ A1	2014		+ A1	2014
IEC 62061	2005	Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems	EN 62061	2005
+ A1	2012		+ A1	2013
+ A2	2015		+ A2	2015
IEC 62271	series	High-voltage switchgear and controlgear	EN 62271	series
IEC 62471 (mod)	2006	Photobiological safety of lamps and lamp systems	EN 62471	2008
IEC 82079-1	2012	Preparation of instructions for use - Structuring, content and presentation - Part 1: General principles and detailed requirements	EN 82079-1	2012
CISPR 11 (mod)	2015	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	EN 55011	2016
+ A1	2016		+ A1	2017
+ A2	2019			
IEEE C95.1	2005	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz		-

¹⁾ Dated as no equivalent European Standard exist.

EN IEC 60519-1:2020 (E)

IEEE C95.6	2002	IEEE Standard for Safety Levels with- Respect to Human Exposure to Electromagnetic Fields, 0–3 kHz	-
ISO 3864-1	2011	Graphical symbols - Safety colours and- safety signs - Part-1: Design principles for safety signs and safety markings	-
ISO 6385	2016	Ergonomics principles in the design ofEN ISO 6385 work systems (ISO 6385:2016)	2016
ISO 7000	2019 ¹⁾	Graphical symbols for use on equipment -- Registered symbols	-
ISO 7010	-	Graphical symbols - Safety colours andEN ISO 7010 safety signs - Registered safety signs	2020
ISO 12100	2010	Safety of machinery - General principlesEN ISO 12100 for design - Risk assessment and risk reduction	2010
ISO 13577-1	2016	Industrial furnaces and associated- processing equipment - Safety - Part 1: General requirements	-
ISO 13577-2	2014	Industrial furnaces and associated- processing equipment - Safety - Part 2: Combustion and fuel handling systems	-
ISO 13577-3	2016	Industrial furnaces and associated processing equipment - Safety - Part 3: Generation and use of protective and reactive atmosphere gases	-
ISO 13732-1	2006	Ergonomics of the thermal environment -EN ISO 13732-1 Methods for the assessment of human responses to contact with surfaces - Part 1: Hot surfaces	2008
ISO 13849-1	2015	Safety of machinery - Safety-related partsEN ISO 13849-1 of control systems	2015
ISO 13850	2015	Safety of machinery - Emergency stop -EN ISO 13850 Principles for design	2015
ISO 13855	2010	Safety of machinery - Positioning ofEN ISO 13855 safeguards with respect to the approach speeds of parts of the human body	2010
ISO 13857	2008	Safety of machinery - Safety distances toEN ISO 13857 prevent hazard zones being reached by upper and lower limbs	2008
ISO 14119	2013	Safety of machinery - Interlocking devicesEN ISO 14119 associated with guards - Principles for design and selection	2013
ISO 14120	2015	Safety of machinery – Guards - GeneralEN ISO 14120 requirements for the design and construction of fixed and movable guards	2015
ISO 14159	2002	Safety of machinery - HygieneEN ISO 14159 requirements for the design of machinery	2008
ISO 19353	2019	Safety of machinery - Fire prevention andEN ISO 19353 fire protection	2019

Annex ZZ (informative)

Relationship between this European standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

This European Standard has been prepared under a Commission's standardization request relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety objectives of that Directive, and associated EFTA regulations.

Table ZZ.1 – Correspondence between this European standard and Annex I of Directive 2014/35/EU [2014 OJ L96]

Safety objectives of Directive 2014/35/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
1 (a)	clauses 1, 4, 6, 7.3, 7.9, 8.5, 9.3, 13.3, 13.10, 14.5, 18.5 Annexes G and F	this standard addresses products for industrial use only
1 (b)	clauses 4 through 17, 18 and 19	
1 (c), intended use	clauses 1, 3, 4, 6, 13 Annexes B, C, D	refer to entries in 2(a) to 2(d) and 3(a) to 3(c) in this table.
1 (c), maintenance	clauses 7, 9, 10, 13, 14	refer to entries in 2(a) to 2(d) and 3(a) to 3(c) in this table.
2 (a)	clauses 4, 7, 13, 18 Annexes B, D, E, F	the general public and animals are outside the scope of this standard
2 (b)	clauses 4, 7, 8, 9, 10, 11, 13 and 18 Annexes C, D, E, F	
2 (c)	clauses 4, 9 through 17 and 18	the general public and animals are outside the scope of this standard
2 (d)	clauses 4, 7, 13 and 18	specific to electroheating is high temperature affecting insulations
3 (a)	clauses 4, 6, 10.4, 10.5, 12.3, 13.6, 13.9, 13.10, 13.13, 14, 15, 16.3 and 18	the general public and animals are outside the scope of this standard
3 (b)	clauses 4, 6, 9, 10, 11, 12, 13.7, 13.9, 13.13, 13.14, 14, 16.3 and 18	the general public and animals are outside the scope of this standard
3 (c)	clauses 6.5, 7, 10, 11, 12, 13, 14, 18	the general public and animals are outside the scope of this standard

WARNING 1: Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2: Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

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**Safety in installations for electroheating and electromagnetic processing –
Part 1: General requirements**

**Sécurité dans les installations destinées au traitement électrothermique
et électromagnétique –
Partie 1: Exigences générales**

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CONTENTS

FOREWORD	7
INTRODUCTION	9
1 Scope	10
2 Normative references	10
3 Terms, definitions and abbreviated terms	14
3.1 General concepts	14
3.2 Equipment and state of equipment	16
3.3 Parts and accessories	17
3.4 Safety related concepts	19
3.5 Abbreviated terms	20
4 Classification and subdivision of equipment and installations	21
4.1 Classification by processing frequency	21
4.2 Classification by voltage	22
4.3 Subdivision of installation and equipment	23
4.3.1 Subdivision into parts	23
4.3.2 Hierarchy and structure of requirements	25
4.4 Classification of hazards and risks	25
4.4.1 Classification of hazards	25
4.4.2 Classification of risks	26
5 Risk assessment	26
6 General provisions	27
6.1 Basic considerations	27
6.2 Significant hazards	28
6.3 Physical environment and operating conditions for the installation as such and electrical equipment outside the processing equipment	28
6.4 Physical environment and operating conditions for electrical equipment caused by operation of the processing equipment	29
6.5 Power supply	30
6.6 Access	31
6.7 Ergonomic aspects	31
6.8 Transport and storage	31
6.9 Provisions for handling	32
6.10 Consumables and replaceable parts	32
7 Protection against hazards from electric shock	32
7.1 General	32
7.2 Fundamental rule of protection	32
7.3 General provisions	33
7.4 Basic protection	34
7.5 Provisions for protection in electric single fault condition	35
7.6 Protective equipotential bonding	36
7.7 Additional provisions for fault protection for frequencies above 200 Hz	38
7.8 Currents in protective conductors	39
7.9 Touch current and touch voltage	39
7.10 Conductors and insulations at high temperature	40
7.11 Non-electric faults	40
8 Protection against hazards from electric or magnetic fields	40

8.1	General.....	40
8.2	Magnetic fields.....	40
8.3	Magnetic fields below 1 Hz	41
8.4	Local electric fields	41
8.5	Requirements related to barriers and screens	41
8.6	Requirements related to objects worn, carried or held by persons	42
9	Protection against hazards from radiation	43
9.1	General.....	43
9.2	Installation or equipment generating ionizing radiation	43
9.3	Ultraviolet radiation	44
9.4	Visible and infrared radiation	44
9.5	Laser sources	45
10	Protection against hazards from thermal influences	45
10.1	General.....	45
10.2	Surface temperature limits for protection against burn	45
10.3	Hazards caused by working conditions.....	46
10.4	Temperature resistance of components.....	46
10.5	Cooling	46
10.6	Over-temperature protection	47
11	Protection against hazards from fire.....	48
12	Protection against hazards from fluids	48
12.1	General.....	48
12.2	Poisonous and injurious fluids.....	49
12.3	Explosion and implosion of pressurised parts of vacuum equipment	50
13	Specific requirements for components and subassemblies	50
13.1	General.....	50
13.2	Electrical equipment and conductors.....	50
13.3	Connection to the electrical supply network and internal connections.....	51
13.4	Isolation and switching.....	52
13.5	Sensors and actuators safeguarding moving parts	52
13.6	Motors	52
13.7	Non electric-heating means.....	52
13.8	Lighting.....	53
13.9	Structural parts and stability.....	53
13.10	Doors, windows and other openings.....	53
13.11	Transformers, inductors, capacitors	53
13.12	Handheld applicators	53
13.13	Vacuum system	54
13.14	Protective and reactive gas generator.....	54
14	Control of the installation or equipment.....	54
14.1	General.....	54
14.2	Operator control unit.....	54
14.3	Emergency stop	55
14.4	Control systems and their safety functions	55
14.5	Controlgear	56
14.6	Protective devices.....	57
14.7	Over-temperature protection devices and systems	57
14.8	Overpressure safety device.....	58

15	Protection against mechanical hazards	58
16	Protection against hazards resulting from use	59
16.1	Particular hazards in processing of food, feed, cosmetics and similar intended for human or animal consumption	59
16.2	Combination equipment	59
17	EMC	59
17.1	Radio frequency interference	59
17.2	Immunity	60
18	Verification and testing	60
18.1	General	60
18.2	Performing measurements and tests	62
18.3	Verification of requirements from references	63
18.4	Examination of drawings or calculations	63
18.5	Visual inspection	63
18.6	Measurements	63
18.6.1	Environment and operating conditions inside the processing equipment	63
18.6.2	Impedance of protective bonding	63
18.6.3	Insulation resistance measurement	64
18.6.4	Measurement of electric or magnetic fields	64
18.6.5	Touch current measurement	64
18.6.6	Measurement of ionising radiation	64
18.6.7	Measurement of non-coherent optical irradiation	64
18.6.8	Measurement of coherent optical radiation	65
18.6.9	Surface temperature measurement	65
18.6.10	Temperature of structural components subject to heat	65
18.7	Functional tests	65
18.7.1	Protection by automatic disconnection of supply	65
18.7.2	Voltage test	65
18.7.3	Dielectric test	65
18.7.4	Accessibility of live parts	65
18.7.5	Protective devices and systems	66
18.8	Numerical calculations and modelling	66
18.8.1	General	66
18.8.2	Numerical assessment of short circuit currents	66
18.8.3	Numerical assessment of electric or magnetic emission	66
18.8.4	Numerical assessment of optical radiation emission	67
19	Information for use	67
19.1	General requirements	67
19.2	Location and nature of the information for use	68
19.3	Signalling and warning devices	68
19.4	Markings, pictograms, written warnings	68
19.5	Instruction handbook	69
Annex A (normative)	List of significant hazards	73
Annex B (normative)	Limits to touch currents	79
B.1	General	79
B.2	Risk classes	80
B.3	Body model	80
Annex C (normative)	Non coherent optical radiation – Limits and risk classes	82

C.1	General.....	82
C.2	Boundary of the installation or equipment and assessment	82
C.3	Non-coherent optical radiation – Risk classes	83
C.3.1	Approach.....	83
C.3.2	Optical radiation – Risk class 0.....	83
C.3.3	Risk class 1 (low risk).....	83
C.3.4	Risk class 2 (moderate risk).....	84
C.3.5	Risk class 3 (high risk)	84
C.3.6	Pulsed equipment.....	84
C.3.7	Radiation from laser sources	84
Annex D	(normative) Electric and magnetic fields	85
D.1	General.....	85
D.2	Boundary of the installation or equipment and assessment	85
D.3	Risk classes.....	85
D.3.1	General	85
D.3.2	Risk class 0.....	86
D.3.3	Risk class 1 (low risk).....	86
D.3.4	Risk class 2 (moderate risk).....	86
D.3.5	Risk class 3 (high risk)	86
Annex E	(normative) Surface temperature limits	87
Annex F	(normative) EH, EPM and fire.....	88
F.1	Occurrence of fire	88
F.2	Inherently safe design measures.....	88
F.3	Safeguarding and/or complementary protective measures	88
F.4	Information for use.....	89
Annex G	(normative) Marking and warning.....	90
G.1	Electromagnetic field hazards	90
G.2	Touch currents and surfaces.....	90
G.3	Optical radiation hazards	91
G.4	Symbols and signs used for markings and warnings.....	91
Annex H	(informative) Guidelines on using this document.....	93
H.1	Guidelines	93
H.2	Examples of EH and EPM equipment.....	94
Annex I	(informative) Connection with ISO 13577 (all parts).....	95
Annex J	(informative) Requirements specific to the EU and associated countries.....	96
J.1	General.....	96
J.2	Connection with ISO 13577 series	96
Bibliography	97
Figure 1	– Block diagram of a typical EH or EPM installation	23
Figure B.1	– Maximum allowed touch and contact currents between 1 kHz to 100 kHz.....	79
Figure B.2	– Complex impedances of various parts of the body, 1 kHz to 6 MHz.....	81
Figure G.1	– Examples of marking for magnetic and electric fields.....	90
Figure G.2	– Examples of marking for touch current.....	90
Figure G.3	– Examples of marking for optical radiation	91
Figure J.1	– Hierarchy of standards applicable to thermoprocessing machinery	96