
Delo pod napetostjo - Oprema za ozemljitev ali ozemljitev in kratkostičenje, ki kot kratkostično napravo uporablja ozemljitveno palico - Ozemljitev z ozemljitveno palico (IEC 61219:1993)

Live working - Earthing or earthing and short-circuiting equipment using lances as short-circuiting device - Lance earthing

Arbeiten unter Spannung - Erdungs- oder Erdungs- und KurzschlieÙvorrichtung mit Stäben als kurzschließendes Gerät - Staberdung

Travaux sous tension - Appareil de mise à la terre ou de mise à la terre et en court-circuit utilisant des cannes comme dispositif de mise en court-circuit - Mise à la terre au moyen de cannes

Ta slovenski standard je istoveten z: EN 61219:1993

ICS:

13.260 Varstvo pred električnim udarom. Delo pod napetostjo Protection against electric shock. Live working

SIST EN 61219:2001

en

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EUROPEAN STANDARD

NORME EUROPEENNE

EUROPÄISCHE NORM

December 1993

UDC 621.316.98-182:621.3.064.1

Descriptors: Live working, characteristics, tests, earthing device,
short-circuiting device, lance

ENGLISH VERSION

Live workig - Earthing or earthing and
short-circuiting equipment using lances as a
short-circuiting device - Lance earthing
(IEC 1219:1993)

Travaux sous tension - Appareil
de mise à la terre ou de mise à
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dispositif de mise en
court-circuit - Mise à la terre
au moyen de cannes
(CEI 1219:1993)

Arbeiten unter Spannung
Erdungs- oder Erdungs- und
Kurzschließvorrichtung
mit Stäben als
kurzschließendes Gerät
Staberdung
(IEC 1219:1993)

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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,
Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg,
Netherlands, Norway, Portugal, 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 78(CO)74, as prepared by IEC Technical Committee 78: Tools for live working, was submitted to the IEC-CENELEC parallel vote in December 1992.

The reference document was approved by CENELEC as EN 61219 on 22 September 1993.

The following dates were fixed:

- latest date of publication of
an identical national standard (dop) 1994-10-01
- latest date of withdrawal of
conflicting national standards (dow) 1994-10-01

For products which have complied with the relevant national standard before 1994-10-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1999-10-01.

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given only for information.
In this standard, annexes A, B, C and ZA are normative.

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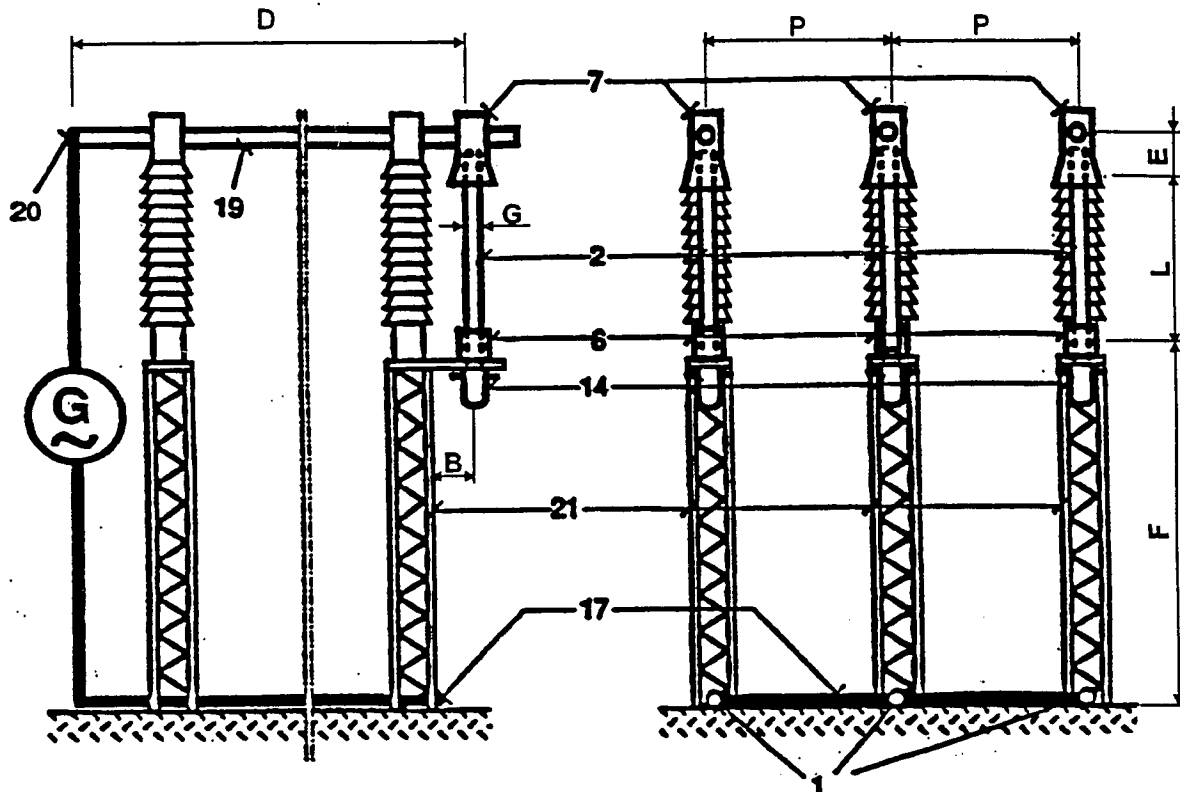
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The text of the International Standard IEC 1219:1993 was approved by CENELEC as a European Standard without any modification.

Editorial:

Replace figure 7 by the new figure given on page 3.



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- B = Distance between the lance and the current transmitting mechanical support
D = Distance from the test current feed-in point to the lance centre, ≥ 2 m (see Annex B)
E = Distance between the test set up conductor and the centre of the lance contact
F = Distance between the earthing lance contact and the earthed short-circuiting conductor (part of the earthing system)
G = Diameter of the lance
L = Distance between the centre of the line lance contact and the centre of the earthing lance contact
P = Phase distance for the lance earthing to be tested, for example according to Table B1 (see Annex B)
- 1 Earth clamp
2 Lance
6 Earthing lance contact
7 Line lance contact
14 Part of detachable coupling
17 Earthed short-circuiting conductor (part of earthing system)
19 Test set up conductor
20 Test current feed-in point
21 Current transmitting mechanical support

Note: The indication of the values for B, E, F and G is necessary for the design of lance earthings performed by methods of calculation based on the values of a certain lance earthing which has been type tested.
This method is under consideration in BTTF 61-3.

Figure 7 - Typical set up for lance earthings with voltages > 36 kV

ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

NOTE : When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
-----	----	-----	-----	----
50(151)	1978	International Electrotechnical Vocabulary (IEV) - Chapter 151: Electrical and magnetic devices	-	-
60-1	1989	High-voltage test techniques Part 1: General definitions and test requirements (+ corrigenda March 1990 and March 1992)	HD 588.1 S1	1991
298	1990	A.C. metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	HD 187 S5	1992
410	1973	Sampling plans and procedures for inspection by attributes	-	-
439-1	1992	Low-voltage switchgear and controlgear assemblies - Part 1: Type-tested and partially type-tested assemblies (+ corrigendum December 1993)	EN 60439-1	1994
479-1	1984	Effects of current passing through the human body - Part 1: General aspects. Chapter 1: Electrical impedance of the human body. Chapter 2: Effects of alternating current in the range of 15 Hz to 100 Hz. Chapter 3: Effects of direct current	-	-
855, mod	1985	Insulating foam-filled tubes and solid rods for live working	HD 496 S1	1988
1138	1992	Cables for portable earthing and short-circuiting equipment	-	-
1230	1993	Live working - Portable equipment for earthing or earthing and short-circuiting	-	-
1235	1993	Live working - Insulating hollow tubes for electrical purposes	-	-

**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC
1219**

Première édition
First edition
1993-09

**Travaux sous tension –
Appareil de mise à la terre ou de mise à la terre
et en court-circuit utilisant des cannes comme
dispositif de mise en court-circuit –
Mise à la terre au moyen de cannes**

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Live working –

**Earthing or earthing and short-circuiting
equipment using lances as a short-circuiting
device – Lance earthing**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**LIVE WORKING –
EARTHING OR EARTHING AND
SHORT-CIRCUITING EQUIPMENT USING LANCES
AS A SHORT-CIRCUITING DEVICE –
LANCE EARTHING**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

International Standard IEC 1219 has been prepared by IEC technical committee 78: Tools for live working.

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

DIS	Report on voting
78(CO)74	78(CO)76

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

Annexes A, B and C form an integral part of this standard.

LIVE WORKING - EARTHING OR EARTHING AND SHORT-CIRCUITING EQUIPMENT USING LANCES AS A SHORT-CIRCUITING DEVICE - LANCE EARTHING

1 Scope

International Standard IEC 1219 applies to equipment for temporary earthing or earthing and short-circuiting of electrically isolated parts of a.c. installations, the disconnection of which has been verified including the absence of voltage, for the protection of workers while work is in progress using lance(s) (see 3.2.2) as the earthing or earthing and short-circuiting device. The standard specifies the performance and safety requirements and tests for lance devices with matching fixed contacts, guiding arrangements, enclosure, insulating elements and earthing cables, if any.

The characteristics of the earthing equipment covered by this standard should be defined on the basis of the intensity and duration of the current, and an voltage when needed for insulation purposes. IEC 855 provides the electrical requirements for separate insulating elements of the equipment.

Component types or configurations are not specified but should comply with the electrical and mechanical requirements of this standard.

This standard is restricted to equipment using copper bars, aluminium bars or iron bars as short-circuiting medium.

NOTE - This standard is not applicable to devices containing short-circuiting cables, which follow the requirements given in IEC 1230.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 50(151): 1978, *International Electrotechnical Vocabulary (IEV) - Chapter 151: Electrical and magnetic devices*

IEC 60-1: 1989, *High-voltage test techniques - Part 1: General definitions and test requirements*

IEC 298: 1990, *A.C. metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

IEC 410: 1973, *Sampling plans and procedures for inspection by attributes*

IEC 439-1: 1992, *Low-voltage switchgear and controlgear assemblies – Part 1: Type-tested and partially type-tested assemblies*

IEC 479-1: 1984, *Effects of current passing through the human body – Part 1: General aspects – Chapter 1: Electrical impedance of the human body – Chapter 2: Effects of alternating current in the range of 15 Hz to 100 Hz – Chapter 3: Effects of direct current*

IEC 855: 1985, *Insulating foam-filled tubes and solid rods for live working*

IEC 1138: 1992, *Live working – Cables for portable earthing and short-circuiting equipment*

IEC 1230: 1993, *Live working – Portable equipment for earthing or earthing and short-circuiting*

IEC 1235: 1993, *Live working – Insulating follow tubes for electrical purposes*

3 Definitions

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For the purposes of this International Standard, the following definitions apply.

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3.1 Tests

3.1.1 Type test

A test of one or more devices made to a certain design to show that the design meets certain specifications. [IEV 151-04-15]

3.1.2 Sampling test

A test on a number of devices taken at random from a batch. [IEV 151-04-17]

3.1.3 Routine test

A test to which each individual device is subjected during or after manufacture to ascertain whether it complies with certain criteria. [IEV 151-04-16]

3.1.4 Acceptance test

A contractual test to prove to the customer that the device meets certain conditions of its specification. [IEV 151-04-20]

3.2 Special terms

3.2.1 Lance earthing

Earthing equipment using lance(s) as devices for earthing or earthing and short-circuiting (see figures 1 to 4). Comprises lance(s), lance contacts on the conductors to be earthed or earthed and short-circuited, earth connection, guiding components and insulating handle(s) or earthing pole(s).

3.2.2 Lance

Lance-shaped conductive rod used for earthing or earthing and short-circuiting by pushing it longitudinally and guiding it into lance contacts. Comprises a conductive part and an insulating handle with hand guard, an earthing pole or a coupling for a separate insulating element (see figures 1 to 4).

3.2.2.1 Single lance

Single- or multi-phase device with one lance only (see figures 1, 3 and 4).

3.2.2.2 Multiple lance

Multi-phase device with a number of lances electrically and mechanically connected together into a rigid multi-pole structure by a short-circuiting and mechanically uniting frame (see figure 2).

3.2.3 Multi-phase lance device

The general ways to assemble a multi-phase lance device are:

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- a) A single lance used as the device for earthing and short-circuiting is:
- connected to an earthing cable, pushed sequentially and guided into the line lance contacts of the conductors to be earthed and short-circuited (see figure 1a);
- or
- pushed sequentially and guided through an earthing lance contact into the line lance contacts of the conductors to be earthed and short-circuited (see figure 1b).
- b) With a set of single lances used as a device for earthing and short-circuiting by pushing and guiding each lance sequentially through an earthing lance contact into the line lance contact of one of the conductors to be earthed and short-circuited (see figure 3).
- c) With a multiple lance used as a device for earthing and short-circuiting. It is connected to an earthing cable and pushed simultaneously and guided into the lance contacts of the conductors to be earthed and short-circuited (see figure 2).

NOTES

- 1 A set of single lances can form a multi-phase lance device only when using earthing lance contacts (see notes in clause 1 and 3.2.7).
- 2 A multiple lance using earthing lance contacts has no advantages over a set of single lances.