SLOVENSKI STANDARD
SIST EN 60129:1995

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Alternating current disconnectors and earthing switches (IEC 129:1984)

Alternating current disconnectors and earthing switches

Wechselstromtrennschalter und Erdungsschalter

Sectionneurs et sectionneurs de terre à courant alternatif

Ta slovenski standard je istoveten z: **EN 60129:1994/A1:1994**

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EUROPEAN STANDARD

NORME EUROPEENNE

EUROPÄISCHE NORM

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June 1994

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Supersedes HD 408 S2:1990

Descriptors: Disconnectors, earthing switches, alternating current

ENGLISH VERSION

Alternating current disconnectors and earthing switches
(IEC 129:1984)

Sectionneurs et sectionneurs de terre à courant alternatif
(CEI 129:1984)

Wechselstromtrennschalter und Erdungsschalter
(IEC 129:1984)

This European Standard was approved by CENELEC on 1994-03-08.
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.

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

At the request of the 76th Technical Board of CENELEC, HD 408 S2:1990 (IEC 129:1984) was submitted to the CENELEC voting procedure for conversion into a European Standard.

The text of the International Standard was approved by CENELEC as EN 60129 on 8 March 1994.

The following dates were fixed:

- latest date of publication of an identical national standard	(dop)	1995-03-15
- latest date of withdrawal of conflicting national standards	(dow)	-

Annexes designated "normative" are part of the body of the standard. In this standard, annex ZA is normative.

ENDORSEMENT NOTICE

The text of the International Standard IEC 129:1984 was approved by CENELEC as a European Standard without any modification.

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	- -	- -
50(441)	1984	Chapter 441: Switchgear, controlgear and fuses	-	-
60-1	1973*	High-voltage test techniques Part 1: General definitions and test requirements	-	-
137	1973	Bushings for alternating voltages above 1 000 V	-	-
265	1968*	High-voltage switches	-	-
270	1981	Partial discharge measurements	-	-
298, mod	1981	A.C. metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 72.5 kV	HD 187 S3*	1984
466	1974	High-voltage insulation-enclosed switchgear and controlgear	-	-
517, mod	1975	High-voltage metal-enclosed switchgear for rated voltages of 72.5 kV and above	HD 358 S1*	1977
694	1980	Common clauses for high-voltage switchgear and controlgear standards	HD 448 S2*	1984

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* IEC 60-1:1973 is superseded by IEC 60-1:1989 which is harmonized as HD 588.1 S1:1991
IEC 265:1968 is superseded by IEC 265-1:1983 + A1:1984 and IEC 265-2:1988 which are respectively harmonized as HD 355.1 S2:1991 and EN 60265-2:1993
HD 187 S3 is superseded by HD 187 S5 which is based on IEC 298:1990, not modified
HD 358 S1:1977 is superseded by HD 358 S3:1992 which is based on IEC 517:1990, not modified
HD 448 S2:1989 includes A1:1985 to IEC 694

EUROPEAN STANDARD

NORME EUROPEENNE

EUROPÄISCHE NORM

EN 60129/A1

June 1994

UDC 621.316.542:621.316.99

Descriptors: Disconnectors, earthing switches, alternating current

Amendment A1 to the English version EN 60129

Alternating current disconnectors and earthing switches
(IEC 129:1984/A1:1992)

Sectionneurs et sectionneurs de terre à courant alternatif
(CEI 129:1984/A1:1992)

Wechselstromtrennschalter und Erdungsschalter
(IEC 129:1984/A1:1992)

This amendment A1 modifies the European Standard EN 60129:1994. It was approved by CENELEC on 1994-03-08. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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 CENELEC questionnaire procedure, performed for finding out whether or not amendment 1:1992 to the International Standard IEC 129:1984 could be accepted without textual changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as amendment A1 to EN 60129 on 8 March 1994.

The following dates were fixed:

- latest date of publication of an identical national standard	(dop)	1995-03-15
- latest date of withdrawal of conflicting national standards	(dow)	1995-03-15

ENDORSEMENT NOTICE

The text of amendment 1:1992 to the International Standard IEC 129:1984 was approved by CENELEC as an amendment to the European Standard without any modification.

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A

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Sectionneurs et sectionneurs de terre à courant alternatif

Alternating current disconnectors and earthing switches

Bureau Central de la Commission Electrotechnique Internationale

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ALTERNATING CURRENT DISCONNECTORS AND EARTHING SWITCHES

FOREWORD

1) 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.

2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.

3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

PREFACE

This standard has been prepared by Sub-Committee 17A: High-voltage Switchgear and Controlgear, of IEC Technical Committee No. 17: Switchgear and Controlgear.

This third edition replaces the second edition of IEC Publication 129. This standard refers to IEC Publication 694: Common Clauses for High-voltage Switchgear and Controlgear Standards, which is applicable unless otherwise specified in this standard. In order to simplify the indication of corresponding requirements, the same numbering of clauses and sub-clauses is used as in Publication 694. Amendments to these clauses and sub-clauses are given under the same references whilst additional sub-clauses are numbered from 101.

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

Six Months' Rule	Report on Voting
17A(CO)162	17A(CO)166

Further information can be found in the Report on Voting, indicated in the table above.

The following IEC publications are quoted in this standard:

Publications Nos. 50(151) (1978):	International Electrotechnical Vocabulary (IEV), Chapter 151: Electrical and Magnetic Devices.
50(441) (1984):	Chapter 441: Switchgear, Controlgear and Fuses.
60-1 (1973):	High-voltage Test Techniques, Part 1: General Definitions and Test Requirements.
137 (1973):	Bushings for Alternating Voltages above 1 000 V.
265 (1968):	High-voltage Switches.
270 (1981):	Partial Discharge Measurements.
298 (1981):	A.C. Metal-enclosed Switchgear and Controlgear for Rated Voltages above 1 kV and up to and Including 72.5 kV.
466 (1974):	High-voltage Insulation-enclosed Switchgear and Controlgear.
517 (1975):	High-voltage Metal-enclosed Switchgear for Rated Voltages of 72.5 kV and Above.
694 (1980):	Common Clauses for High-voltage Switchgear and Controlgear Standards.

ALTERNATING CURRENT DISCONNECTORS AND EARTHING SWITCHES

1. Scope

This standard applies to alternating current disconnectors and earthing switches, designed for indoor and outdoor installation, for voltages above 1 000 V and for service frequencies up to and including 60 Hz.

This standard also applies to the operating devices of these disconnectors and earthing switches and their auxiliary equipment.

This standard does not deal with additional requirements for disconnectors and earthing switches in enclosed switchgear and controlgear as these are covered by IEC Publications 298: A.C. Metal-enclosed Switchgear and Controlgear for Rated Voltages Above 1 kV and up to and including 72.5 kV, 466: High-voltage Insulation-enclosed Switchgear and Controlgear and 517: High-voltage Metal-enclosed Switchgear for Rated Voltages of 72.5 kV and Above.

Note. — Disconnectors in which a fuse is an integral part are not covered by this standard.

2. Normal and special service conditions

Clause 2 of IEC Publication 694: Common Clauses for High-voltage Switchgear and Controlgear Standards, is applicable.

3. Definitions

In this clause references are made to definitions in IEC Publication 50(441): International Electrotechnical Vocabulary (IEV), Chapter 441: Switchgear, Controlgear and Fuses, and Publication 50(151), Chapter 151: Electrical and Magnetic Devices, when the relevant definitions exist.

For the purpose of this standard, the following definitions are applicable:

3.101 *General terms*

3.101.1 *Switchgear and controlgear* (441-11-01)

3.101.2 *Indoor switchgear and controlgear* (441-11-04)

3.101.3 *Outdoor switchgear and controlgear* (441-11-05)

3.101.4 *Ambient air temperature* (441-11-13)

3.101.5 *Temperature rise* (of a part of a disconnector or earthing switch)

The difference between the temperature of the part and the ambient air temperature.

3.102 *Switching devices*

3.102.1 *Disconnector*

IEV 441-14-05 is applicable with the following additional note:

Note. — "Negligible current" implies currents such as the capacitance currents of bushings, busbars, connections, very short lengths of cables, currents of permanently connected grading impedances of circuit-breakers and currents of voltage transformers and dividers. For rated voltages of 420 kV and below, a current not exceeding 0.5 A is deemed to be a negligible current for the purpose of this definition; for rated voltages above 420 kV, the manufacturer should be consulted.

"No significant change in voltage" refers to such applications as the by-passing of induction voltage regulators or circuit-breakers.

3.102.2 *Divided support disconnector* (earthing switch) (441-14-06(07))

3.102.3 *Centre-break disconnector* (441-14-08)

3.102.4 *Double-break disconnector* (441-14-09)

3.102.5 *Earthing switch* (441-14-11)

3.102.6 *Switch-disconnector* (441-14-12)

3.103 *Parts of switching devices*

3.103.1 *Pole* (441-15-01)

3.103.2 *Main circuit* (441-15-02)

3.103.3 *Control circuit* (441-15-03)

3.103.4 *Auxiliary circuit* (441-15-04)

3.103.5 *Contact* (441-15-05)

3.103.6 *Contact piece* (441-15-06)

3.103.7 *Main contact* (441-15-07)

3.103.8 *Auxiliary contact* (441-15-10)

3.103.9 *Control contact* (441-15-09)

3.103.10 *a-contact, make contact* (441-15-12)

3.103.11 *b-contact, break contact* (441-15-13)

3.103.12 *Position indicating device* (441-15-25)

3.103.13 *Position-signalling device*

A part of a disconnector or earthing switch which enables a signal to be given, generally at a location remote from the disconnector or earthing switch, indicating whether the contacts of the main circuit are in the open or closed position.

3.103.14 *Terminal* (151-01-03)

3.103.15 *Contact zone* (for divided support disconnectors and earthing switches)

The spatial region delimiting the various positions the fixed contact may take up for correct engagement with the moving contact.

3.104 *Operation* (of a mechanical switching device)

3.104.1 *Operation* (441-16-01)

3.104.2 *Operating cycle* (441-16-02)

3.104.3 *Closing operation* (441-16-08)

3.104.4 *Opening operation* (441-16-09)

3.104.5 *Dependent manual operation* (441-16-13)

3.104.6 *Dependent power operation* (441-16-14)

3.104.7 *Stored energy operation* (441-16-15)

3.104.8 *Independent manual operation* (441-16-16)

3.104.9 *Closed position* (441-16-22)

3.104.10 *Open position* (441-16-23)

3.104.11 *Interlocking device* (441-16-49)

3.105 *Characteristic quantities*

3.105.1 *Prospective current* (of a circuit and with respect to a disconnector or to an earthing switch) (441-17-01)

3.105.2 *Prospective peak current*

The peak value of the first major loop of the prospective current during the transient period following initiation.

Note. — The definition assumes that the current is made by an ideal switching device, i.e. with instantaneous and simultaneous transition of its impedance across the terminals of each pole from infinity to zero. The peak value may differ from one pole to another; it depends on the instant of current initiation relative to the voltage wave across the terminals of each pole.

3.105.3 *Maximum prospective peak current* (of an a.c. circuit) (441-17-04)

3.105.4 *(Peak) making current* (of an earthing switch)

The peak value of the first major loop of the current in a pole of the earthing switch during the transient period following the initiation of current during a making operation.

Notes 1. — The peak value may differ from one pole to another and from one operation to another as it depends on the instant of current initiation relative to the wave of the applied voltage.

2. — Where, for a polyphase circuit, a single value of (peak) making current is referred to, this is, unless otherwise stated, the highest value in any phase.

3.105.5 *Peak current*

The peak value of the first major loop of current during the transient period following initiation.

3.105.6 *Normal current* (of a disconnector)

The current which the main circuit of the disconnector is capable of carrying continuously under specified conditions of use and behaviour.