



# SLOVENSKI STANDARD

## SIST EN 60517:2001

01-marec-2001

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### Gas-insulated metal-enclosed switchgear for rated voltages of 72,5 kV and above

Gas-insulated metal-enclosed switchgear for rated voltages of 72,5 kV and above

Gasisolierte metallgekapselte Schaltanlagen für Bemessungsspannungen von 72,5 kV und darüber

Appareillage sous enveloppe métallique à isolation gazeuse de tension assignée égale ou supérieure à 72,5 kV

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Ta slovenski standard je istoveten z: **EN 60517:1996**

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#### **ICS:**

29.130.10	Visokonapetostne stikalne in krmilne naprave	High voltage switchgear and controlgear
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60517**

January 1996

ICS 29.120.60

Supersedes HD 358 S3:1992

Descriptors: Switchgear, high-voltage switchgear, metal enclosed switchgear, characteristics, tests

English version

**Gas-insulated metal-enclosed switchgear for rated voltages  
of 72,5 kV and above  
(IEC 517:1990 + corrigendum 1995 + A1:1994)**

Appareillage sous enveloppe métallique  
à isolation gazeuse de tension assignée  
égale ou supérieure à 72,5 kV  
(CEI 517:1990 + corrigendum 1995 +  
A1:1994)

Gasisolierte metallgekapselte  
Schaltanlagen für  
Bemessungsspannungen von  
72,5 kV und darüber  
(IEC 517:1990 + Corrigendum 1995 +  
A1:1994)

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This European Standard was approved by CENELEC on 1995-11-28. 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

The text of the International Standard IEC 517:1990 with its corrigendum April 1995 and its amendment 1:1994, prepared by SC 17C, High-voltage enclosed switchgear and controlgear, of IEC TC 17, Switchgear and controlgear, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 60517 on 1995-11-28 without any modification.

This European Standard supersedes HD 358 S3:1992.

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) 1996-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1996-12-01

For products which have complied with HD 358 S3:1992 before 1996-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2001-12-01.

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes AA, BB, DD and ZB are normative and annexes CC and ZA are informative.

Annexes ZA and ZB have been added by CENELEC.

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**Endorsement notice**

The text of the International Standard IEC 517:1990 with its corrigendum April 1995 and its amendment A1:1994, was approved by CENELEC as a European Standard without any modification.

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**Annex ZA (informative)****A-deviations**

**A-deviation:** National deviation due to regulations, the alteration of which is for the time being outside the competence of the CEN/CENELEC member.

This European Standard falls under Directive 93/38/EEC.

NOTE (from CEN/CENELEC IR Part 2, 3.1.9): Where standards fall under EC Directives, it is the view of the Commission of the European Communities (OJ No C 59; 1982-03-09) that the effect of the decision of the Court of Justice in case 815/79 Cremonini/Vrankovich (European Court Reports 1980, p. 3583) is that compliance with A-deviations is no longer mandatory and that the free movement of products complying with such a standard should not be restricted except under the safeguard procedure provided for in the relevant Directive.

A-deviations in an EFTA-country are **valid instead** of the relevant provisions of the European Standard in that country until they have been removed.

<u>Clause</u>	<u>Deviation</u>
5.105.2	<b>Austria</b> (Fire Vessel code BGBl, N° 510/1986; § 30; paragraph 2)  Pressure relief devices shall be provided mandatorily.
5.103.2	<b>Italy</b> (Rules of ISPEL (former ANCO))  The design of enclosures has to be made according to the Italian law on pressure vessels.
5.106	<b>Italy</b> (DPR, N° 547/55, clauses 293 and 345)  The operating position of the disconnecter is known only when the isolating distance is visible.

## Annex ZB (normative)

Normative references to international publications  
with their corresponding 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 (including amendments).

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 44-4	1980	Instrument transformers Part 4: Measurement of partial discharges	-	-
IEC 50(151)	1978	International Electrotechnical Vocabulary (IEV) Chapter 151: Electrical and magnetic devices	-	-
IEC 50(441)	1984	Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 56 (mod)	1987	High-voltage alternating-current circuit-breakers	HD 348 S6 <sup>1)</sup>	1995
IEC 60-2	1973 <sup>2)</sup>	High-voltage test techniques Part 2: Test procedures	-	-
IEC 129	1984	Alternating current disconnectors and earthing switches	EN 60129	1994
IEC 137	1984	Bushings for alternating voltages above 1 kV	EN 60137	1996
IEC 141	series	Test on oil-filled and gas-pressure cables and their accessories	-	-
IEC 270	1981	Partial discharge measurements	-	-
IEC 298	1990	A.C. metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	EN 60298 <sup>3)</sup>	1996

1) HD 348 S6 includes A1:1992 + A2:1995 to IEC 56, mod.

2) IEC 60-2:1994 is harmonized as EN 60060-2:1994.

3) EN 60298 includes the corrigendum April 1995 + A1:1994 to IEC 298.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 480	1974	Guide to the checking of sulphur hexafluoride (SF <sub>6</sub> ) taken from electrical equipment	-	-
IEC 529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 651	1979	Sound level meters	EN 60651	1994
IEC 694	1980	Common clauses for high-voltage switchgear and controlgear standards	HD 448 S3 <sup>4)</sup>	1995
IEC 859	1986	Cable connections for gas-insulated metal-enclosed switchgear for rated voltages of 72,5 kV and above	-	-

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4) HD 448 S3 includes A1:1985 + A2:1993 to IEC 694.

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NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC  
517

Troisième édition  
Third edition  
1990-10

Appareillage sous enveloppe métallique  
à isolation gazeuse de tension assignée  
égale ou supérieure à 72,5 kV

**iTeh STANDARD PREVIEW**  
Gas-insulated metal-enclosed switchgear  
for rated voltages of 72,5 kV and above  
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Numéro de référence  
Reference number  
CEI/IEC 517: 1990

GER: NAPRAVE STIAZ-NIE; NARĘTOST VIŠOKA; IZOLACIJA PLINSEA; OKROVI KOVINSKI

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## GAS-INSULATED METAL-ENCLOSED SWITCHGEAR FOR RATED VOLTAGES OF 72,5 kV AND ABOVE

### 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.

This standard has been prepared by Sub-Committee 17C High-voltage enclosed switchgear and controlgear, of IEC Technical Committee No. 17: Switchgear and controlgear.

It replaces the second edition, issued in 1986.

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

Six Months' Rule	Report on Voting	Two Months' Procedure	Report on Voting
17C(CO)49	17C(CO)53	17C(CO)67	17C(CO)69
17C(CO)51	17C(CO)56		
17C(CO)63	17C(CO)66		

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

The standard refers to IEC 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 subclauses is used as in IEC 694. Amendments to these clauses and subclauses are given under the same references whilst additional subclauses are numbered from 101. Additional annexes are lettered AA, BB, etc.

The following IEC publications are quoted in this standard:

- Publications Nos. 44-4 (1980): Instrument transformers. Part 4: Measurement of partial discharges.
- 50(151) (1978): International Electrotechnical Vocabulary (IEV), Chapter 151: Electrical and magnetic devices.
- 50(441) (1984): International Electrotechnical Vocabulary (IEV), Chapter 441: Switchgear, controlgear and fuses.
- 56 (1987): High-voltage alternating-current circuit-breakers.
- 60-2 (1973): High-voltage test techniques, Part 2: Test procedures.
- 129 (1984): Alternating current disconnectors and earthing switches.
- 137 (1984): Bushings for alternating voltages above 1 000 V.
- 141 (---): Tests on oil-filled and gas-pressure cables and their accessories.
- 270 (1981): Partial discharge measurements.
- 298 (1990): A.C. metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV.  
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- 480 (1974): Guide to the checking of sulphur hexafluoride (SF<sub>6</sub>) taken from electrical equipment.
- 529 (1989): Degrees of protection provided by enclosures (IP Code).
- 651 (1979): Sound level meters.
- 694 (1980): Common clauses for high-voltage switchgear and controlgear standards.
- 859 (1986): Cable connections for gas-insulated metal-enclosed switchgear for rated voltages of 72,5 kV and above.

## GAS-INSULATED METAL-ENCLOSED SWITCHGEAR FOR RATED VOLTAGES OF 72,5 kV AND ABOVE

### 1 Scope

This standard specifies requirements for gas-insulated metal-enclosed switchgear in which the insulation is obtained, at least partly, by an insulating gas other than air at atmospheric pressure, for alternating current of rated voltages of 72,5 kV and above, for indoor and outdoor installation, and for service frequencies up to and including 60 Hz.

For the purpose of this standard the term "switchgear" is used for "gas-insulated metal-enclosed switchgear".

The gas-insulated metal-enclosed switchgear covered by this standard consists of individual components intended to be directly connected together and able to operate only in this manner.

This standard completes and amends, if necessary, the various relevant standards applying to the individual components constituting gas-insulated metal-enclosed switchgear.

Unless otherwise specified, the gas-insulated metal-enclosed switchgear is designed to be used under normal service conditions. (standards.iteh.ai)

### 2 Normal and special service conditions SIST EN 60517:2001

[https://standards.iteh.ai/catalog/standards/sist/131591b1-1078-4c2f-8ebb-](https://standards.iteh.ai/catalog/standards/sist/131591b1-1078-4c2f-8ebb-26b785944194/sist-en-60517-2001)

Refer to clause 2 of IEC 694, with the following modification:

At any altitude the dielectric characteristics of the internal insulation are identical with those measured at sea-level. For this insulation, therefore, no requirements concerning the altitude are applicable.

### 3 Definitions

For the definitions of general terms used in this standard, reference is made to IEC 50(441) and 50(151). The following definitions apply for the purpose of this standard:

#### 3.101 *Switchgear*

A general term covering switching devices and their combination with associated control, measuring, protective and regulating equipment, also assemblies of such devices and equipment with associated interconnections, accessories, enclosures and supporting structures, intended in principle for use in connection with generation, transmission, distribution and conversion of electric energy (IEV 441-11-02).