



SLOVENSKI STANDARD SIST EN 62501:2009

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Electrical testing of voltage sourced converter (VSC) valves for high-voltage direct voltage (HVDC) power transmission (IEC 62501:2009)

Spannungsgeführte Stromrichterventile (VSC-Ventile) für die Hochspannungsgleichstromübertragung (HGÜ) Elektrische Prüfung (IEC 62501:2009)

Essais électriques sur les valves à convertisseur de source de tension (VSC) pour le transport d'énergie en courant continu à haute tension (CCHT) EEIC 62501:2009

<https://standards.iteh.ai/catalog/standards/sist/886d2bbf-affc-43eb-abb-67e3aa403371/sist-en-62501-2009>

Ta slovenski standard je istoveten z: EN 62501:2009

ICS:

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| 29.200 | W{ ^!} ä äÜ!^c[!] ä ä Ùcè ää äæ [Á^\ d ä] } ä ä ä ä | Rectifiers. Convertors. Stabilized power supply |
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 62501

August 2009

ICS 29.200; 29.240

English version

**Voltage sourced converter (VSC) valves
for high-voltage direct current (HVDC) power transmission -
Electrical testing
(IEC 62501:2009)**

Valves à convertisseur de source
de tension (VSC) pour le transport
d'énergie en courant continu
à haute tension (CCHT) -
Essais électriques
(CEI 62501:2009)

Spannungsgeführte Stromrichterventile
(VSC-Ventile) für die
Hochspannungsgleichstromübertragung
(HGÜ) -
Elektrische Prüfung
(IEC 62501:2009)

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This European Standard was approved by CENELEC on 2009-07-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 22F/185/FDIS, future edition 1 of IEC 62501, prepared by SC 22F, Power electronics for electrical transmission and distribution systems, of IEC TC 22, Power electronic systems and equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62501 on 2009-07-01.

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) 2010-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2012-07-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62501:2009 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60146-2 NOTE Harmonized as EN 60146-2:2000 (not modified).

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 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 60060 | Series | High-voltage test techniques | EN 60060 | Series |
| IEC 60060-1 | 1989 | High-voltage test techniques - Part 1: General definitions and test requirements | HD 588.1 S1 | 1991 |
| IEC 60071-1 | 2006 | Insulation co-ordination - Part 1: Definitions, principles and rules | EN 60071-1 | 2006 |
| IEC 60700-1 | 1998 | Thyristor valves for high voltage direct current | EN 60700-1 | 1998 |
| A1 | 2003 | (HVDC) power transmission - | A1 | 2003 |
| A2 | 2008 | Part 1: Electrical testing | A2 | 2008 |
| ISO/IEC 17025 | - ¹⁾ | General requirements for the competence of testing and calibration laboratories | EN ISO/IEC 17025 | 2005 ²⁾ |

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¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

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IEC 62501

Edition 1.0 2009-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Voltage sourced converter (VSC) valves for high-voltage direct current (HVDC) power transmission – Electrical testing

Valves à convertisseur de source de tension (VSC) pour le transport d'énergie en courant continu à haute tension (CCHT) – Essais électriques

INTERNATIONAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**VOLTAGE SOURCED CONVERTER (VSC)
VALVES FOR HIGH-VOLTAGE DIRECT CURRENT (HVDC)
POWER TRANSMISSION – ELECTRICAL TESTING**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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IEC 62501 has been prepared by subcommittee 22F: Power electronics for electrical transmission and distribution systems, of IEC technical committee 22: Power electronic systems and equipment.

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

| FDIS | Report on voting |
|--------------|------------------|
| 22F/185/FDIS | 22F/193/RVD |

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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VOLTAGE SOURCED CONVERTER (VSC) VALVES FOR HIGH-VOLTAGE DIRECT CURRENT (HVDC) POWER TRANSMISSION – ELECTRICAL TESTING

1 Scope

This International Standard applies to self-commutated converter valves, for use in a three-phase bridge voltage sourced converter (VSC) for high voltage d.c. power transmission or as part of a back-to-back link. It is restricted to electrical type and production tests.

The tests specified in this standard are based on air insulated valves. For other types of valves, the test requirements and acceptance criteria must be agreed.

2 Normative references

The following referenced documents are indispensable for the application 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.

IEC 60060 (all parts), *High-voltage test techniques*

IEC 60060-1:1989, *High-voltage test techniques – Part 1: General definitions and test requirements*

[SIST EN 62501:2009](#)

IEC 60071-1:2006, *Insulation co-ordination – Part 1: Definitions, principles and rules*

IEC 60700-1:1998, *Thyristor valves for high voltage direct current (HVDC) power transmission – Part 1: Electrical testing*¹⁾

Amendment 1(2003)

Amendment (2008)

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Insulation co-ordination terms

3.1.1

test withstand voltage

value of a test voltage of standard waveshape at which a new valve, with unimpaired integrity, does not show any disruptive discharge and meets all other acceptance criteria specified for the particular test, when subjected to a specified number of applications or a specified duration of the test voltage, under specified conditions

¹⁾ There exists a consolidated edition 1.2 (2008) that comprises IEC 60700-1, Amendment 1 and Amendment 2.