

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 62501:2009 sisaldab Euroopa standardi EN 62501:2009 ingliskeelset teksti.

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**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 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.

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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with the EN have to be withdrawn (dow) 2012-07-01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).

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⁾

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

CONTENTS

FOREWORD.....	5
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	7
3.1 Insulation co-ordination terms	7
3.2 Power semiconductor terms	8
3.3 Operating states.....	8
3.3.1 Operating state of an IGBT-diode pair	8
3.3.2 Operating state of converter	9
3.4 VSC construction terms.....	9
3.5 Valve structure terms	10
4 General requirements.....	10
4.1 Guidelines for the performance of type tests.....	10
4.1.1 Evidence in lieu	10
4.1.2 Test object	10
4.1.3 Sequence of test	11
4.1.4 Test procedure	11
4.1.5 Ambient temperature for testing.....	11
4.1.6 Frequency for testing.....	11
4.1.7 Test reports.....	11
4.2 Atmospheric correction factor	11
4.3 Treatment of redundancy.....	12
4.3.1 Operational tests	12
4.3.2 Dielectric tests.....	12
4.4 Criteria for successful type testing.....	12
4.4.1 General	12
4.4.2 Criteria applicable to valve levels	13
4.4.3 Criteria applicable to the valve as a whole.....	14
5 List of type tests	14
6 Operational tests	14
6.1 Purpose of tests	14
6.2 Test object	15
6.3 Test circuit	15
6.4 Maximum continuous operating duty test.....	15
6.5 Maximum temporary over-load operating duty test.....	16
6.6 Minimum d.c. voltage test.....	16
7 Dielectric tests on valve support structure	17
7.1 Purpose of tests	17
7.2 Test object	17
7.3 Test requirements	17
7.3.1 Valve support d.c. voltage test.....	17
7.3.2 Valve support a.c. voltage test.....	18
7.3.3 Valve support switching impulse test	19
7.3.4 Valve support lightning impulse test	19
8 Dielectric tests on multiple valve unit.....	19
8.1 Purpose of tests	19

8.2	Test object	19
8.3	Test requirements	20
8.3.1	MVU d.c. voltage test to earth	20
8.3.2	MVU a.c. voltage test	20
8.3.3	MVU switching impulse test	21
8.3.4	MVU lightning impulse test	22
9	Dielectric tests between valve terminals	22
9.1	Purpose of the test	22
9.2	Test object	23
9.3	Test requirements	23
9.3.1	Valve a.c. – d.c. voltage test	23
9.3.2	Valve impulse tests (general)	25
9.3.3	Valve switching impulse test	25
9.3.4	Valve lightning impulse test	26
10	IGBT overcurrent turn-off test	26
10.1	Purpose of test	26
10.2	Test object	27
10.3	Test requirements	27
11	Short-circuit current test	27
11.1	Purpose of tests	27
11.2	Test object	27
11.3	Test requirements	27
12	Tests for valve insensitivity to electromagnetic disturbance	28
12.1	Purpose of tests	28
12.2	Test object	28
12.3	Test requirements	28
12.3.1	General	28
12.3.2	Approach one	28
12.3.3	Approach two	29
12.3.4	Acceptance criteria	29
13	Production tests	29
13.1	Purpose of tests	29
13.2	Test object	29
13.3	Test requirements	30
13.4	Production test objectives	30
13.4.1	Visual inspection	30
13.4.2	Connection check	30
13.4.3	Voltage-grading circuit check	30
13.4.4	Control, protection and monitoring circuit checks	30
13.4.5	Voltage withstand check	30
13.4.6	Partial discharge tests	30
13.4.7	Turn-on / turn-off check	30
13.4.8	Pressure test	31
14	Presentation of type test results	31
	Annex A (informative) Overview of VSC topology	32
	Annex B (informative) Fault tolerance capability	40
	Bibliography	41

Figure A.1 – A single VSC phase unit and its idealized output voltage	33
Figure A.2 – Output voltage of a VSC phase unit for a 2-level converter	33
Figure A.3 – Output voltage of a VSC phase unit for a 15-level converter, without PWM	34
Figure A.4 – Basic circuit topology of one phase unit of a 2-level converter	35
Figure A.5 – Basic circuit topology of one phase unit of a 3-level diode-clamped converter	36
Figure A.6 – Basic circuit topology of one phase unit of a 5-level diode-clamped converter	36
Figure A.7 – Basic circuit topology of one phase unit of a 3-level flying capacitor converter	37
Figure A.8 – A single VSC phase unit with valves of the “controllable voltage source” type	38
Figure A.9 – One possible implementation of a multi-level “voltage source” VSC valve	38
Table 1 – Minimum number of valve levels to be tested as a function of the number of valve levels per valve.....	11
Table 2 – Valve level faults permitted during type tests.....	13
Table 3 – List of type tests.....	14

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*

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.