

RATIFICACIÓN DE DOCUMENTOS EUROPEOS MAYO 2001

HOJA DE ANUNCIO

En cumplimiento del punto 11.2.6.4 de las Reglas Internas de CEN/CENELEC Parte 2, se ha otorgado el rango de norma española al Documento Europeo siguiente:

Documento Europeo	Título	Fecha de Disponibilidad
EN 60700-1:1998	Válvulas de tiristores para transmisión de energía en corriente continua de alta tensión (CCAT). Parte 1: Ensayos eléctricos. (Ratificada por AENOR en mayo de 2001)	1998-10-26

Este anuncio causará efecto a partir del primer día del mes siguiente al de su publicación en la revista UNE. La correspondiente versión oficial de este documento se encuentra disponible en la sede de AENOR, Calle Génova 6, 28004 MADRID.

©..1998.. Derechos de reproducción reservados a los Miembros de CENELEC.

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

Valves à thyristors pour le transport
d'énergie en courant continu à haute
tension (CCHT)
Partie 1: Essais électriques
(CEI 60700-1:1998)

Thyristorventile für Hochspannungs-
gleichstrom-Energieübertragung
Teil 1: Elektrische Prüfung
(IEC 60700-1:1998)

This European Standard was approved by CENELEC on 1998-10-01. 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, Czech Republic, 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 22F/44/FDIS, future edition 1 of IEC 60700-1, prepared by SC 22F, Power electronics for electrical transmission and distribution systems, of IEC TC 22, Power electronics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60700-1 on 1998-10-01.

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) 1999-07-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2001-07-01

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

Annexes designated "informative" are given for information only.

In this standard, annexes A, B and ZA are normative and annex C is informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60700-1:1998 was approved by CENELEC as a European Standard without any modification.

Annex ZA (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>
ISO/IEC Guide 25	1990	General requirements for the competence of calibration and testing laboratories	-	-
IEC 60060	series	High-voltage test techniques	HD 588.1 S1 EN 60060-2	1991 1994
IEC 60071-1	1993	Insulation co-ordination Part 1: Definitions, principles and rules	EN 60071-1	1995
IEC 60099	series	Surge arresters	EN 60099	series
IEC 60270	1981	Partial discharge measurements	-	-
IEC 61803	- ¹⁾	Determination of power losses in high-voltage direct current (HVDC) converter stations	-	-

1) To be published.

CONTENTS

	Page
FOREWORD	9
Clause	
1 Scope	11
2 Normative references	11
3 Definitions	11
4 General requirements	17
4.1 Guidelines for the performance of type tests	17
4.1.1 Evidence in lieu	17
4.1.2 Test object	17
4.1.3 Sequence of tests	17
4.1.4 Test procedures	17
4.1.5 Ambient temperature for testing	17
4.1.6 Frequency for testing	17
4.1.7 Test reports	19
4.2 Atmospheric correction	19
4.3 Treatment of redundancy	19
4.3.1 Dielectric tests	19
4.3.2 Operational tests	19
4.4 Criteria for successful type testing	19
4.4.1 Criteria applicable to thyristor levels	21
4.4.2 Criteria applicable to the valve as a whole	23
5 List of type tests	23
6 Dielectric tests on valve support	25
6.1 Purpose of tests	25
6.2 Test object	25
6.3 Test requirements	25
6.3.1 Valve support d.c. voltage test	25
6.3.2 Valve support a.c. voltage test	27
6.3.3 Valve support switching impulse test	27
6.3.4 Valve support lightning impulse test	29
7 Dielectric tests for multiple valve units (MVU)	29
7.1 Purpose of tests	29
7.2 Test object	29
7.3 Test requirements	29
7.3.1 MVU d.c. voltage test to earth	29
7.3.2 MVU a.c. voltage test	31

Clause	Page
7.3.3 MVU switching impulse test	33
7.3.4 MVU lightning impulse test	35
8 Dielectric tests between valve terminals	35
8.1 Purpose of tests	35
8.2 Test object	37
8.3 Test requirements	37
8.3.1 Valve d.c. voltage test	37
8.3.2 Valve a.c. voltage test	39
8.3.3 Valve impulse tests (general)	41
8.3.4 Valve switching impulse test	41
8.3.5 Valve lightning impulse test	43
8.3.6 Valve steep front impulse test	43
8.4 Valve non-periodic firing test	45
8.4.1 Purpose of test	45
8.4.2 Test object	45
8.4.3 Test requirements	45
9 Periodic firing and extinction tests	47
9.1 Purpose of tests	47
9.2 Test object	49
9.3 Test requirements	49
9.3.1 Maximum continuous operating duty tests	51
9.3.2 Maximum temporary operating duty test ($\alpha = 90^\circ$)	53
9.3.3 Minimum a.c. voltage tests	55
9.3.4 Temporary undervoltage test	57
9.3.5 Intermittent direct current tests	59
10 Tests with transient forward voltage during the recovery period	61
10.1 Purpose of tests	61
10.2 Test object	61
10.3 Test requirements	61
11 Valve fault current tests	63
11.1 Purpose of tests	63
11.2 Test object:	63
11.3 Test requirements	63
11.3.1 One-loop fault current test with re-applied forward voltage	65
11.3.2 Multiple-loop fault current test without re-applied forward voltage	67