SVENSK STANDARD

SS-EN IEC 60700-3, utg 1:2023

Fastställd	Sida	Ansvarig kommitté
2023-09-20	1 (37)	SEK TK 22F

Tyristorventiler för högspänd likström – Del 3: Väsentliga märkvärden och egenskaper

Thyristor valves for high voltage direct current (HVDC) power transmission – Part 3: Essential ratings (limiting values) and characteristics

Som svensk standard gäller europastandarden EN IEC 60700-3:2023. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60700-3:2023.

Nationellt förord

Europastandarden EN IEC 60700-3:2023

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60700-3, First edition, 2022 - Thyristor valves for high voltage direct current (HVDC) power transmission - Part 3: Essential ratings (limiting values) and characteristics**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 29.200.00

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Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60700-3

January 2023

ICS 29.200

English Version

Thyristor valves for high voltage direct current (HVDC) power transmission - Part 3: Essential ratings (limiting values) and characteristics (IEC 60700-3:2022)

Valves à thyristors pour le transport d'énergie en courant continu à haute tension (CCHT) - Partie 3: Valeurs assignées (valeurs limites) et caractéristiques essentielles (IEC 60700-3:2022)

Thyristorventile für Hochspannungsgleichstrom - Energieübertragung (HGÜ) - Teil 3: Wesentliche Nenngrößen (begrenzende Werte) und Eigenschaften (IEC 60700-3:2022)

This European Standard was approved by CENELEC on 2023-01-03. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 60700-3:2023 E

SEK Svensk Elstandard SS-EN IEC 60700-3, utg 1:2023

European foreword

The text of document 22F/667/CDV, future edition 1 of IEC 60700-3, 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 approved by CENELEC as EN IEC 60700-3:2023.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2023-10-03
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2026-01-03

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60700-3:2022 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60071-5	NOTE	Harmonized as EN 60071-5
IEC 60099-4	NOTE	Harmonized as EN 60099-4
IEC 60099-9	NOTE	Harmonized as EN 60099-9
IEC 60146-1-1	NOTE	Harmonized as EN 60146-1-1
IEC 60633	NOTE	Harmonized as EN IEC 60633
IEC/TR 60919-1	NOTE	Harmonized as CLC/TR 60919-1
IEC/TR 60919-2	NOTE	Harmonized as CLC/TR 60919-2

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60060-1	-	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	-
IEC 60071-1	-	Insulation co-ordination - Part 1: Definitions, principles and rules	EN IEC 60071-1	-
IEC 60700-1	2015	Thyristor valves for high voltage direct current (HVDC) power transmission - Part 1: Electrical testing	EN 60700-1	2015
+ AMD1	2021		+ A1	2021
IEC 60700-2	2016	Thyristor valves for high voltage direct current (HVDC) power transmission - Part 2: Terminology	EN 60700-2	2016
IEC 61803	2020	Determination of power losses in high-voltage direct current (HVDC) converter stations with line-commutated converters	EN IEC 61803	2020

IEC 60700-3

Edition 1.0 2022-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Thyristor valves for high voltage direct current (HVDC) power transmission – Part 3: Essential ratings (limiting values) and characteristics

Valves à thyristors pour le transport d'énergie en courant continu à haute tension (CCHT) – Partie 3: Valeurs assignées (valeurs limites) et caractéristiques essentielles

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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THYRISTOR VALVES FOR HIGH VOLTAGE DIRECT CURRENT (HVDC) POWER TRANSMISSION –

Part 3: Essential ratings (limiting values) and characteristics

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 60700-3 has been prepared by subcommittee 22F: Power electronics for electrical transmission and distribution systems, of IEC technical committee 22: Power electronic systems and equipment. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
22F/667/CDV	22F/686/RVC

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 60700 series, published under the general title *Thyristor valves for high voltage direct current (HVDC) power transmission*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

THYRISTOR VALVES FOR HIGH VOLTAGE DIRECT CURRENT (HVDC) POWER TRANSMISSION –

Part 3: Essential ratings (limiting values) and characteristics

1 Scope

This part of IEC 60700 specifies the service conditions, the definitions of essential ratings and characteristics of thyristor valves utilized in line commutated converters with three-phase bridge connections to realize the conversion from AC to DC and vice versa for high voltage direct current (HVDC) power transmission applications. It is applicable for air insulated, liquid cooled and indoor thyristor valves.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60060-1, *High-voltage test techniques – Part 1: General definitions and test requirements*

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

IEC 60700-1:2015, *Thyristor valves for high voltage direct current (HVDC) power transmission – Part 1: Electrical testing*
IEC 60700-1:2015/AMD1:2021[1]

IEC 60700-2:2016, *Thyristor valves for high voltage direct current (HVDC) power transmission – Part 2: Terminology*

IEC 61803:2020, *Determination of power losses in high-voltage direct current (HVDC) converter stations with line-commutated converters*

[1] There exists a consolidated edition 1.1 (2021) that comprises IEC 60700-1:2015 and its Amendment 1:2021.