

**Võrkstruktuurisolatsiooniga kaablid
nimipingega kuni 450/750 V. Osa 1:
Üldnõuded**

Cables of rated voltages up to and including 450/750 V and having cross-linked insulation Part 1: General requirements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-HD 22.1 S4:2003 sisaldab Euroopa standardi HD 22.1 S4:2002 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 12.03.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-HD 22.1 S4:2003 consists of the English text of the European standard HD 22.1 S4:2002.</p> <p>This document is endorsed on 12.03.2003 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

ICS 29.060.20

Standardite reprodutseerimis- ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

Right to reproduce and distribute Estonian Standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:
Aru str 10 Tallinn 10317 Estonia; www.evs.ee; Phone: +372 605 5050; E-mail: info@evs.ee

English version

**Cables of rated voltages up to and including 450/750 V
and having cross-linked insulation
Part 1: General requirements**

Conducteurs et câbles isolés
avec des matériaux réticulés
de tension assignée
au plus égale à 450/750 V
Partie 1: Prescriptions générales

Starkstromleitungen mit vernetzter
Isolierhülle mit Nennspannungen
bis 450/750 V
Teil 1: Allgemeine Anforderungen

This Harmonization Document was approved by CENELEC on 2002-09-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

Up-to-date lists and bibliographical references concerning such national implementation may be obtained on application to the Central Secretariat or to any CENELEC member.

This Harmonization Document exists in three official versions (English, French, German).

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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

This edition 4 of HD 22.1 has been prepared by the Technical Committee CLC/TC 20, Electric cables.

HD 22 was originally adopted by CENELEC on 9th July 1975.

Edition 2 of HD 22 was implemented on 1st January 1984. A third edition of Part 1 was published in September 1997.

This 4th edition provides a full updating, including incorporation of amendments ratified during the maintenance of Part 3 onwards of HD 22, and introduces other improvements.

HD 22.1 S4 is related to IEC 60245-1:1994, but is not directly equivalent.

HD 22 now has the following parts:

HD 22.1 S4	General requirements
HD 22.2 S3	Test methods
HD 22.3 S3	Heat resistant silicone rubber insulated cables
HD 22.4 S3	Cords and flexible cables
HD 22.5	(Spare)
HD 22.6 S2	Arc welding cables
HD 22.7 S2	Cables with increased heat resistance for internal wiring for a conductor temperature of 110 °C
HD 22.8 S2	Polychloroprene or equivalent synthetic elastomer sheathed cable for decorative chains
HD 22.9 S2	Single core non-sheathed cables for fixed wiring having low emission of smoke and corrosive gases
HD 22.10 S1	EPR insulated and polyurethane sheathed flexible cable
HD 22.11 S1	EVA cords and flexible cables
HD 22.12 S1	Heat resistant EPR cords and flexible cables
HD 22.13 S1	Single and multicore flexible cables, insulated and sheathed with cross-linked polymer and having low emission of smoke and corrosive gases
HD 22.14 S2	Cords for applications requiring high flexibility
HD 22.15 S1	Multicore cables insulated and sheathed with heat resistant silicone rubber
HD 22.16 S1	Water resistant polychloroprene or equivalent synthetic elastomer sheathed cables

In order that this revision of Part 1 of HD 22 does not introduce unnecessary changes to long-established clause numbers, the normative references (which would otherwise be inserted as clause 2) are given in annex A.

The draft Harmonization Document was submitted to the Unique Acceptance Procedure and approved by CENELEC as HD 22.1 S4 on 2002-09-01.

The following dates were fixed:

- latest date by which the existence of the HD has to be announced at national level (doa) 2003-03-01
- latest date by which the HD has to be implemented at national level by publication of a harmonized national standard or by endorsement (dop) 2003-09-01
- latest date by which the national standards conflicting with the HD have to be withdrawn (dow) 2003-09-01

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

Annexes designated "informative" are given for information only.

In this standard, annex A is normative and annex B is informative.

Contents

	Page
1 General	
1.1 Scope	4
1.2 Object	4
1.3 Common marking	4
2 Definitions	
2.1 Definitions relating to insulating and sheathing materials and their processing	4
2.2 Definitions relating to the tests	6
2.3 Rated voltage	6
3 Marking	
3.1 Indication of origin	6
3.2 Continuity of marks	7
3.3 Durability	7
3.4 Legibility	7
3.5 Common marking	7
3.6 Use of the name CENELEC	8
3.7 Code designation	8
4 Core identification	
4.1 General requirements	8
4.2 Colour schemes	8
4.3 Colour combination green-and-yellow	9
4.4 Core identification of flexible cables by the 'Marking by inscription' method	9
5 General requirements for the construction of cables	
5.1 Conductors	9
5.2 Insulation	10
5.3 Filler	17
5.4 Textile braid	17
5.5 Sheath	18
5.6 Tests on completed cables	26
6 Guide to use of the cables	30
Annex A (normative) Normative references	31
Annex B (informative) National marking	32

1 General

1.1 Scope

HD 22 applies to rigid and flexible cables, sheathed and unsheathed, and insulated with cross-linked material, of rated voltages U_0/U up to and including 450/750V, used in power installations.

NOTE For some types of flexible cables, the term "cord" is used.

This Part 1 specifies the general requirements applicable to these cables.

The test methods specified are given in Part 2 of this Harmonization Document (HD), or in the common test methods for cables given in EN 50265, EN 50266, EN 50267, EN 50268 and EN 60811.

The particular types of cables are specified in Part 3 onwards of this HD, which are hereafter referred to as "the particular specifications".

The code designations of these types of cables are in accordance with HD 361.

1.2 Object

The objects of this HD are to standardise cables and cords that are safe and reliable when properly used, to state the characteristics and manufacturing requirements directly or indirectly bearing on safety, and to specify methods for checking conformity with those requirements.

1.3 Common marking

The common marking (<HAR>) signifies that the manufacturer has been assessed, and his production is subjected to continuing surveillance in accordance with the technical procedures, by a recognised national Approval Organisation, which is a signatory to the "Agreement on the use of a Commonly Agreed Marking for Cables and Cords complying with Harmonised Specifications."

Compliance with this HD may be certified by the application of the agreed technical procedures for granting the common marking¹⁾, which are the recognised means of ensuring that a manufacturer is competent and takes all reasonable care to produce cables complying with this HD.

The common marking may be used, under these conditions, by manufacturers in countries which have implemented this HD and in which the national Approval Organisations are signatories to the Agreement.

NOTE See annex B for guidance on national marking.

2 Definitions

2.1 Definitions relating to insulating and sheathing materials and their processing

2.1.1 cross-linking

the process of multiple intermolecular covalent bonding between polymer chains obtained through a chemical process, with or without the contribution of heat, or through a physical process such as irradiation

¹⁾ These are given in Appendices 4 and 5 of the 'Agreement on the use of a Commonly Agreed Marking for Cables and Cords complying with Harmonised Specifications'.