Test methods and requirements for accessories for use on distribution cables of rated voltage 0,6/1,0 (1,2) kV

Test methods and requirements for accessories for use on distribution cables of rated voltage 0,6/1,0 (1,2) kV



EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN
50393:2006 sisaldab Euroopa standardi
EN 50393:2006 ingliskeelset teksti.

Käesolev dokument on jõustatud 16.06.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 50393:2006 consists of the English text of the European standard EN 50393:2006.

This document is endorsed on 16.06.2006 with the notification being published in the official publication of the Estonian national standardisation organisation.

The standard is available from Estonian standardisation organisation.

Käsitlusala:

This European Standard details the performance requirements and the test methods for type tests for cable accessories for use on cables of rated voltage 0,6/1,0 (1,2) kV as defined in HD 603.

Scope:

This European Standard details the performance requirements and the test methods for type tests for cable accessories for use on cables of rated voltage 0,6/1,0 (1,2) kV as defined in HD 603.

ICS 29.120.20

Võtmesõnad: compliance, electric cable, electrical power distribution, joint, marking, phisical characteristics, termination, type test

EUROPEAN STANDARD

EN 50393

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2006

ICS 29.120.20

Supersedes HD 623 S1:1996 + A1:2001

English version

Test methods and requirements for accessories for use on distribution cables of rated voltage 0,6/1,0 (1,2) kV

Méthodes et prescriptions d'essai pour les accessoires de câbles de distribution de tension assignée 0,6/1,0 (1,2) kV Prüfverfahren und Prüfanforderungen für die Garnituren von Verteilerkabeln mit einer Nennspannung von 0,6/1,0 (1,2) kV

This European Standard was approved by CENELEC on 2005-10-01. 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, 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: rue de Stassart 35, B - 1050 Brussels

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 20, Electric cables.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50393 on 2005-10-01.

This European Standard supersedes HD 623 S1:1996 and its amendment A1:2001.

This European Standard is the first revision of HD 623 S1:1996 and includes the first amendment A1:2001 and the changes proposed by the CLC/TC 20 WG 11, Harmonisation of joints, accessories and terminations of electric cables.

CLC/TC 20, at its meeting in Stockholm (May 2002), agreed that HD 623 should be converted to an EN. This European Standard has been written as part of a series of standards to satisfy the Public Procurement Directive, and is complementary to HD 603, which covers cables rated at 0,6/1,0 (1,2) kV for use by distributors of electrical power.

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) 2006-11-01

nflicth latest date by which the national standards conflicting with the EN have to be withdrawn

Contents

1	Scope				
2	Normative references				
3	Definitions				
4	Cor	nponents	7		
	4.1	Connectors	7		
		Materials			
5		etrical characteristics			
		Rated voltage			
		Current rating			
6		uirements			
•		General			
		Joints and stop ends			
		Transition joints			
		Packaging, marking and labelling, and information provided by manufacturer			
7	Type tests				
•					
	7.1	General Test samples	10		
	7.2	Test samples	10		
		Sequence of tests			
8	Tes	t methods			
	8.1	General	15		
	8.2	Impulse voltage withstand test at ambient temperature	16		
	8.3	AC voltage withstand test	16		
	8.4	Insulation resistance test	17		
	8.5	Impact at ambient temperature	17		
		Heating cycle test			
	8.7				
	8.8	Examination			
		Metallic screen short-circuit current withstand test			
Anr		(informative) Determination of cable conductor temperature			

Figures

Figure 1	Arrangement for the impact test at ambient temperature	.22			
Figure 2	Typical arrangement for the heating cycle in air23				
Figure 3	Typical arrangement for the heating cycle for joints in water2				
Figure 4	Typical arrangement for the heating cycle for outdoor terminations in water2				
Figure 5	Method of connection for the heating cycle test on a branch joint where the main cable conductor cross-section is greater than 50 mm² and the branch cable conductor cross-section is less than or equal to 50 mm² (example only)25				
Figure 6	Method of connection of three phase cables for the heating cycle test on a straight joint (example only)				
Figure 7	Method of connection of three-phase main and branch cables of equal conductor cross-section for the heating cycle test on a branch joint (example only)27				
Figure 8	Method of connection of three-phase main and branch cables of unequal conductor cross-section for the heating cycle test on a branch joint (example only)28				
Figure 9	Typical heating cycle	.29			
Figure 10	Arrangement for the screen short-circuit test	.29			
Figure A.1	1 Arrangement for the cable calibration test				
Figure A.2 Tables	Variation of Θ_c with Θ_{st} for various heating currents	.34			
Table 1	Maximum rated conductor temperatures	8			
Table 2	Summary of compliance with different cable insulations				
Table 3	Test sequence for joints for solid extruded dielectric insulated cables and for transition joints between solid extruded dielectric insulated cables and impregnated paper insulated cables				
Table 4	Test sequence for stop ends on solid extruded dielectric insulated cables	.12			
Table 5	Test sequence for outdoor terminations on solid extruded dielectric insulated cables13				
Table 6a	Number of test samples and conductor cross-section: straight joints	.14			
Table 6b	Number of test samples and conductor cross-section: branch joints14				
Table 6c	Number of test samples and conductor cross-section: stop ends	.14			
Table 6d	Number of test samples and conductor cross-section: outdoor terminations	.15			

1 Scope

This European Standard details the performance requirements and the test methods for type tests for cable accessories for use on cables of rated voltage 0,6/1,0 (1,2) kV as defined in HD 603.

- 5 -

Formerly, approvals for such products have been achieved on the basis of national standards and specifications and/or the demonstration of satisfactory service performance. The publication of this European standard does not invalidate existing approvals. However, products approved to such earlier standards or specifications shall not claim approval to this European Standard unless specifically tested to it.

After they have been successfully made, these tests need not be repeated unless changes are made in the cable accessory materials, design or manufacturing process which might affect the performance characteristics.

Joints, stop ends and outdoor terminations for extruded solid dielectric insulated cables and transition joints between extruded solid dielectric insulated and impregnated paper insulated cables are included. Joints, stop ends and outdoor terminations for impregnated paper insulated cables are not included.

The service operating conditions of accessories shall be compatible with the service operating conditions of the cable.

Accessories for special applications such as submarine cables, shipboard application or hazardous situations (explosive environments, fire resistant cables or seismic conditions) are not included.

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.

EN 60228		Conductors of insulated cables
EN 61180-1		High-voltage test techniques for low-voltage equipment – Part 1: Definitions, test and procedures requirements
EN 61238-1		Compression and mechanical connectors for power cables for rated voltages up to 36 kV ($U_{\rm m}$ = 42 kV) – Part 1: Test methods and requirements
HD 603		Distribution cables of rated voltage 0,6/1 kV
HD 631	series 1)	Electrical cables – Accessories – Material characterization
IEC 60050-461		International Electrotechnical Vocabulary – Chapter 461: Electric cables
IEC 60055-2		Paper-insulated metal-sheathed cables for rated voltages up to 18/30 kV (with copper or aluminium conductors and excluding gaspressure and oil-filled cables) – Part 2: General and construction requirements
IEC 60287	series	Electric cables – Calculation of the current rating

¹⁾ At draft stage.