EESTI STANDARD **EVS-EN 50411-2-4:2006**

This document is a preview generated by EVS

Fibre organisers and closures to be used in optical fibre communication systems – Product specifications Part 2-4: Sealed dome fibre splice closures Type 1, for category S & A

Fibre organisers and closures to be used in optical fibre communication systems – Product specifications Part 2-4: Sealed dome fibre splice closures Type 1, for category S & A

EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA	NATIONAL FOREWORD
Käesolev Eesti standard EVS-EN 50411-2-4:2006 sisaldab Euroopa standardi EN 50411-2-4:2006 ingliskeelset teksti. Käesolev dokument on jõustatud 28.08.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 50411-2-4:2006 consists of the English text of the European standard EN 50411-2-4:2006. This document is endorsed on 28.08.2006 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 specification contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements of a fully installed splice closure in order for it to be categorised as an EN standard product.	**Scope:** This specification contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements of a fully installed splice closure in order for it to be categorised as an EN standard product.

ICS 33.180.99

Võtmesõnad:

This document is a preview generated by EVS

Eesti Standardikeskusele kuulub standardite reprodutseerimis- ja levitamisõigus

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50411-2-4

May 2006

ICS 33.180.99

English version

Fibre organisers and closures to be used in optical fibre communication systems – Product specifications Part 2-4: Sealed dome fibre splice closures Type 1, for category S & A

Organiseurs et boîtiers de fibres à utiliser dans les systèmes de communication par fibres optiques – Spécifications de produits
Partie 2-4: Boîtiers à épissure de fibres sous dôme scellés Type 1, pour catégories S & A

LWL-Spleißkassetten und -Muffen für die Anwendung in LWL-Kommunikationssystemen – Produktnormen
Teil 2-4: LWL-Muffen Bauart 1 mit abgedichteter Haube für die Kategorien S und A

This European Standard was approved by CENELEC on 2005-12-01. 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

© 2006 CENELEC - All rights of exploitation in any form and by any means reserved worldwide for CENELEC members.

Ref. No. EN 50411-2-4:2006 E

This document is a preview generated by EVS

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 86BXA, Fibre optic interconnect, passive and connectorised components.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50411-2-4 on 2005-12-01.

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)	2006-12-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2008-12-01

This document is a preview generated by EVS

Fibre organisers and closures to be used in optical fibre communication systems – Product specifications

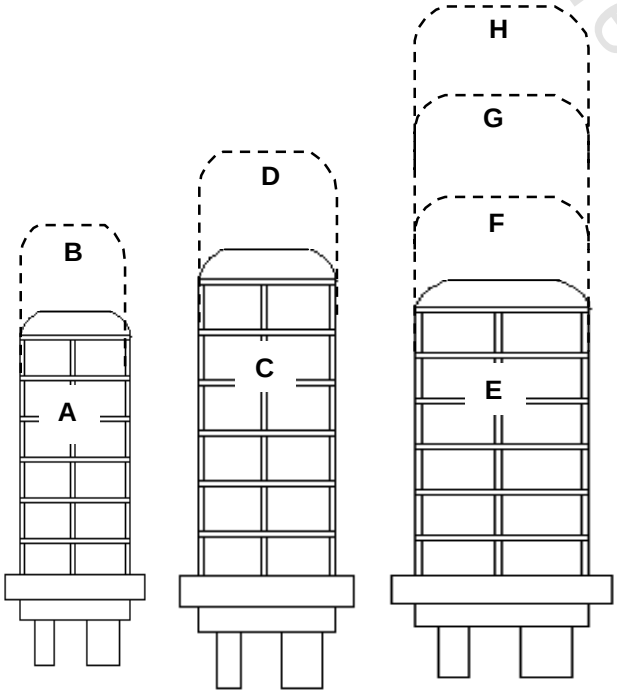
Part 2-4: Sealed dome fibre splice closures Type 1, for category S & A

Description		**Performance**	
Construction:	Sealed dome ended	**Applications**:	
Cable seals:	Heat activated and or cold applied	Optical fibre cable networks	
Fibre management:	Single Circuit, Single Element, Multiple Element and/or Single/Multiple Ribbon	for underground;	IEC 61753-1 category S
		for aerial;	IEC 61753-1 category A

Related documents:

EN 60793-2-50	Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres (IEC 60793-2-50)
EN 60794-2	Optical fibre cables – Part 2: Indoor cables – Sectional specification (IEC 60794-2)
EN 60794-3	Optical fibre cables – Part 3: Sectional specification – Outdoor cables (IEC 60794-3)
EN 61753-1 [1)]	Fibre optic interconnecting devices and passive components – Part 1: General and guidance for performance standard (IEC 61753-1)
EN 61300 series	Fibre optic interconnecting devices and passive components – Basic test and measurement procedures (IEC 61300 series)
ETS 300 019	Equipment Engineering (EE) - Environmental conditions and environmental tests for telecommunication equipment

Construction and splice capacity:



Variant: Number fibre splices - Maximum capacity & fibre management system – SC, SE, SR, ME and MR

	S organiser			**M organiser**	
	Single Circuit (SC)	**Single Element (SE)**	**Single Ribbon (SR)**	**Multiple Element (ME)**	**Multiple Ribbon (MR)**
				A 72 splices	
	B 12 splices	**B** 72 splices	**B** 36 splices	**B** 96 splices	
	C 24 splices	**C** 144 splices	**C** 72 splices	**C** 144 splices	
	D 48 splices	**D** 288 splices	**D** 144 splices	**D** 576 splices	
	E 84 splices	**E** 216 splices	**E** 144 splices		
	F 144 splices	**F** 432 splices	**F** 288 splices		
	G 192 splices	**G** 624 splices	**G** 384 splices		**G** 288 splices
	H 240 splices	**H** 864 splices	**H** 432 splices		**H** 1 152 splices

[1)] At draft stage.

This document is a preview generated by EVS

Contents

1 Scope **5**
1.1 Product definition 5
1.2 Operating environment 5
1.3 Reliability 5
1.4 Quality assurance 5
1.5 Allowed fibre and cable types 5
2 Normative references **5**
3 Description **6**
3.1 Closure housing 6
3.2 Closure overpressure safety 7
3.3 Cable seals 7
3.4 Organiser system 8
3.5 Materials 8
3.6 Colour and marking 8
4 Variants **9**
5 Dimensional requirements **13**
5.1 Dimensions of closures for Multiple Element and Multiple Ribbon fibres 13
5.2 Dimensions of closures for Single Circuit, Single Element and Single Ribbon 14
6 Tests **15**
6.1 Sample size 15
6.2 Test sample preparation 15
6.3 Test and measurement methods 16
6.4 Test sequence 16
6.5 Pass/fail criteria 16
7 Test report **17**
8 Performance requirements **17**
8.1 Dimensional and marking requirements 17
8.2 Sealing, optical and appearance performance criteria 17
8.3 Mechanical sealing performance requirements 18
8.4 Environmental sealing performance requirements 22
8.5 Mechanical optical performance requirements 24
8.6 Environmental optical performance requirements 25

Annex A (informative) **Fibre for test sample details** **26**
Annex B (informative) **Sample size and product sourcing requirements** **27**
Annex C (informative) **Families of organiser systems covered in this standard** **28**
Annex D (informative) **Dimensions of organisers for Multiple Element and Multiple Ribbon fibres** **30**
Annex E (informative) **Dimensions of S organisers for Single Circuit, Single Element and Single Ribbon** **31**

This document is a preview generated by EVS

1 Scope

1.1 Product definition

This specification contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements of a fully installed splice closure in order for it to be categorised as an EN standard product.

1.2 Operating environment

The tests selected combined with the severity and duration are representative of an outside plant for subterranean and/or aerial environments defined by:

ETS 300 019 class 8.1: underground locations (without earthquake requirement)

IEC 61753-1 category S: subterranean environment

category A: aerial environment

1.3 Reliability

Whilst the anticipated service life expectancy of the product in this environment is 20 years, compliance with this specification does not guarantee the reliability of the product. This should be predicted using a recognised reliability assessment programme.

1.4 Quality assurance

Compliance with this specification does not guarantee the manufacturing consistency of the product. This should be maintained using a recognised quality assurance programme.

1.5 Allowed fibre and cable types

Although the performance tests are carried out on test samples with dispersion unshifted single mode fibre (see Annex A), the closure, once tested according to this product specification, will be also suited for other fibre types like dispersion shifted, non-zero dispersion shifted and multi-mode fibres.

This closure standard allows both singlemode and multimode fibre to be used and covers all IEC standard optical fibre cables with their various fibre capacities, types and designs. This includes, but is not limited to, optical fibre cable standards EN 60794-2 (indoor), EN 60794-3 (outdoor).

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 60793-2-50 Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres (IEC 60793-2-50)

EN 60794-2 Optical fibre cables – Part 2: Indoor cables – Sectional specification (IEC 60794-2)

EN 61300 series Fibre optic interconnecting devices and passive components – Basic test and measurement procedures (IEC 61300 series)

EN 61300-2-1 Part 2-1: Tests – Vibration (sinusoidal)

This document is a preview generated by EVS

EN 61300-2-4	Part 2-4: Tests – Fibre/cable retention
EN 61300-2-5	Part 2-5: Tests – Torsion/twist
EN 61300-2-10	Part 2-10: Test – Crush resistance
EN 61300-2-12	Part 2-12: Tests – Impact
EN 61300-2-22	Part 2-22: Tests – Change of temperature
EN 61300-2-23	Part 2-23: Tests – Sealing for non-pressurised closures of fibre optic devices
EN 61300-2-26	Part 2-26: Tests – Salt mist
EN 61300-2-33	Part 2-33: Tests – Assembly and disassembly of closures
EN 61300-2-34	Part 2-34: Tests – Resistance to solvents and contaminating fluids
EN 61300-2-37	Part 2-37: Tests – Cable bending for closures
EN 61300-2-38	Part 2-38: Tests – Sealing for pressurised closures of fibre optic devices
EN 61300-3-1	Part 3-1: Examinations and measurements – Visual examination
EN 61300-3-3	Part 3-3: Examinations and measurements – Active monitoring of changes in attenuation and return loss
EN 61300-3-28	Part 3-28: Examinations and measurements – Transient loss
EN 61753-1 [2)]	Fibre optic interconnecting devices and passive components – Part 1: General and guidance for performance standard (IEC 61753-1)
ES 300 019	Equipment Engineering (EE) - Environmental conditions and environmental tests for telecommunications equipment

3 Description

3.1 Closure housing

An optical closure comprises a closure housing that is attached to the ends of the joined cable sheaths and a means for containing and protecting the fibres, splices and other passive optical devices.

This is not to be confused with an optical closure for blowing cable or fibre. This comprises an access housing that allows the interconnection of cable ducts or tubes and is attached to the ends of the ducts or cables containing empty tubes. However, this document shall be used when air blown fibres are spliced inside this type of closure.

The fibre management closure provides facilities for the environmental protection, housing for fibre management systems and sealing of input and output optical cables. In order to comply with the standard, the optical functionality, physical, geometrical and mechanical requirements are defined.

The design of the closure housing shall allow the jointing of two or more cable ends in the following configurations or applications:

[2)] At draft stage.

This document is a preview generated by EVS