

Fibre organisers and closures to be used in optical fibre communication systems - Product specifications - Part 3-2: Singlemode mechanical fibre splice

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 50411-3-2:2011 sisaldab Euroopa standardi EN 50411-3-2:2011 ingliskeelset teksti.

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**Fibre organisers and closures to be used in optical fibre communication systems -
Product specifications -
Part 3-2: Singlemode mechanical fibre splice**

Organiseurs et boîtiers de fibres destinés
à être utilisés dans les systèmes de
communication par fibres optiques -
Spécifications de produit -
Partie 3-2: Epissures mécaniques de
fibres unimodales

LWL-Spleißkassetten und -Muffen für die
Anwendung in LWL
Kommunikationssystemen -
Produktnorm -
Teil 3-2: Mechanische Spleiße für
Einmodenfasern

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

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

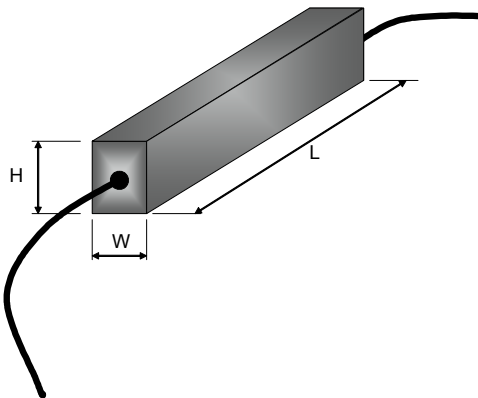
The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50411-3-2 on 2011-01-02.

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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) 2012-01-02
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2014-01-02

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Fibre organisers and closures to be used in optical fibre communication systems – Product specifications																															
Part 3-2: Singlemode mechanical fibre splice																															
Description		Performance																													
Type:	Fibre splice	Application:	EN 61753-1:2007, Category U with extension of lower temperature to - 40 °C																												
Style:	Mechanical																														
Operating wavelength:	1 260 nm to 1 625 nm	Attenuation grades	Grade B: ≤ 0,25 dB maximum (97 %) Grade C: ≤ 0,50 dB maximum (97 %)																												
Fibre category	EN 60793-2-50 Types B1.1 and B1.3	Return loss grades	Grade 1: ≥ 60 dB Grade 2: ≥ 45 dB Grade 3: ≥ 35 dB																												
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 60794-2-50	Optical fibre cables – Part 2-50: Indoor cables – Family specification for simplex and duplex cables for use in terminated cable assemblies (IEC 60794-2-50)																														
EN 61300 series	Fibre optic interconnecting devices and passive components – Basic test and measurement procedures (IEC 61300 series)																														
EN 61753-1:2007	Fibre optic interconnecting devices and passive components performance standard – Part 1: General and guidance for performance standards (IEC 61753-1:2007)																														
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		<table><tr><th>Variant</th><th>Dimension W mm</th><th>Dimension H mm</th><th>Dimension L mm</th></tr><tr><td>Type M1</td><td>3,8</td><td>6,4</td><td>38</td></tr><tr><td>Type M2</td><td>4,0</td><td>4,0</td><td>36</td></tr><tr><td>Type M3</td><td>3,2</td><td>3,2</td><td>45</td></tr><tr><td>Type M4</td><td>4,2</td><td>4,2</td><td>44</td></tr><tr><td>Type M5</td><td>4,0</td><td>4,0</td><td>40</td></tr><tr><td>Type M6</td><td colspan="2">Ø 5,0</td><td>65</td></tr></table>		Variant	Dimension W mm	Dimension H mm	Dimension L mm	Type M1	3,8	6,4	38	Type M2	4,0	4,0	36	Type M3	3,2	3,2	45	Type M4	4,2	4,2	44	Type M5	4,0	4,0	40	Type M6	Ø 5,0		65
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1 Scope

1.1 Product definition

This European Standard contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements, which a singlemode mechanical splice shall meet in order for it to be categorised as an EN standard product.

Since different variants and grades of performance are permitted, product marking and identification details are given in 3.5.

Although in this document the product is qualified for EN 60793-2-50 types B1.1 and B1.3 singlemode fibres, it may also be suitable for other fibre types.

1.2 Interoperability

The installed mechanical splice fits into a fibre management system with optical fibre splice cassettes or splice trays. This European Standard specifies the following two physical interface dimensions:

- a) cross sectional profile with width, height or diameter (in millimetres);
- b) length (in millimetres).

1.3 Expected performance

In this document, the performance of a mechanical splice is given with identical fibres only. Losses associated with fibre cladding diameter and mode field mismatch are not taken into account. The measured attenuation is a function of the core concentricity, cladding non-circularity and alignment capability. The optical return loss performance is a function of the index matching gel and the fibre end face preparation.

1.4 Operating environment

The tests selected combined with the severities and durations are representative of an outdoor enclosed environment defined as category U in EN 61753-1. To ensure that the product can be used in closures, boxes or street cabinet for categories A, G and S (as defined EN 61753-1) the specified lower temperature is extended to - 40 °C and requirements for temporary flooding have been added.

1.5 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.

1.6 Quality assurance

Compliance with this specification does not guarantee the manufacturing consistency of the product. This standard does not cover quality insurance.

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 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) (IEC 61300-2-1)
EN 61300-2-4	Part 2-4: Tests – Fibre/cable retention (IEC 61300-2-4)
EN 61300-2-5	Part 2-5: Tests – Torsion/twist (IEC 61300-2-5)
EN 61300-2-7	Part 2-7: Tests – Bending moment (IEC 61300-2-7)
EN 61300-2-9	Part 2-9: Tests – Shock (IEC 61300-2-9)
EN 61300-2-17	Part 2-17: Tests – Cold (IEC 61300-2-17)
EN 61300-2-18	Part 2-18: Tests – Dry heat – High temperature endurance (IEC 61300-2-18)
EN 61300-2-22	Part 2-22: Tests – Change of temperature (IEC 61300-2-22)
EN 61300-2-26	Part 2-26: Tests – Salt mist (IEC 61300-2-26)
EN 61300-2-27	Part 2-27: Tests – Dust – Laminar flow (IEC 61300-2-27)
EN 61300-2-33	Part 2-33: Tests – Assembly and disassembly of fibre optic closures (IEC 61300-2-33)
EN 61300-2-45	Part 2-45: Tests – Durability test by water immersion (IEC 61300-2-45)
EN 61300-2-46	Part 2-46: Tests – Damp heat cyclic (IEC 61300-2-46)
EN 61300-3-3:2009	Part 3-3: Examinations and measurements – Active monitoring of changes in attenuation and return loss (IEC 61300-3-3:2009)
EN 61300-3-4:2001	Part 3-4: Examinations and measurements – Attenuation (IEC 61300-3-4:2001)
EN 61300-3-6:2009	Part 3-6: Examinations and measurements – Return loss (IEC 61300-3-6:2008)
EN 61300-3-7:2001	Part 3-7: Examinations and measurements – Wavelength dependence of attenuation and return loss (IEC 61300-3-7:2000)
EN 61300-3-28:2002	Part 3-28: Examinations and measurements – Transient loss (IEC 61300-3-28:2002)
EN 61753-1:2007	Fibre optic interconnecting devices and passive components performance standard – Part 1: General and guidance for performance standards (IEC 61753-1:2007)

3 Description

3.1 General

A singlemode mechanical fibre splice is a passive optical interconnection component which provides optical and mechanical continuity between two optical fibres or cables. The products described in this specification are based on mechanical alignment of two cleaved fibres. The fibres are protected against ingress of dust or water by a sealing material, generally an index matching gel, to both minimise reflections and to improve attenuation at the glass/gel/glass interface.