SLOVENSKI STANDARD
SIST EN 50411-3-6:2013

01-april-2013

Delilniki za optična vlakna in kabelske spojnice za optične komunikacijske sisteme - Specifikacija izdelka - 3-6. del: Večrodna mehanska optična spojnica

Fibre organisers and closures to be used in optical fibre communication systems - Product specifications - Part 3-6: Multimode mechanical fibre splice

LWL-Spleißkassetten und -Muffen für die Anwendung in LWL Kommunikationssystemen - Produktnorm - Teil 3-6: Mechanische Spleiße für Mehrmoden-Fasern

Organiseurs et boîtiers de fibres destinés à être utilisés dans les systèmes de communication par fibres optiques - Spécifications de produits -- Part 3-6: Epissure mécanique de fibres multimodales

Ta slovenski standard je istoveten z: **EN 50411-3-6:2013**

ICS:

33.180.20	Povezovalne naprave za optična vlakna	Fibre optic interconnecting devices

SIST EN 50411-3-6:2013 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50411-3-6

March 2013

ICS 33.180.20

English version

Fibre organisers and closures to be used in optical fibre communication systems - Product specifications - Part 3-6: Multimode mechanical fibre splice for use in an outdoor protected environment (Cat U)

Organiseurs et boîtiers de fibres destinés à être utilisés dans les systèmes de communication par fibres optiques - Spécifications de produits - Partie 3-6: Epissure mécanique de fibres multimodales installée en environnement extérieur protégé (Cat U)

LWL-Spleißkassetten und -Muffen für die Anwendung in LWL Kommunikationssystemen - Produktnorm - Teil 3-6: Mechanische Spleiße von Mehrmoden-Faser für geschützte Freiluftanwendungen (Kategorie U)

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CENELEC

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

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Contents

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Foreword

This document (EN 50411-3-6:2013) has been prepared by CLC/TC 86BXA "Fibre optic interconnect, passive and connectorised components".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-12-24
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2015-12-24

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

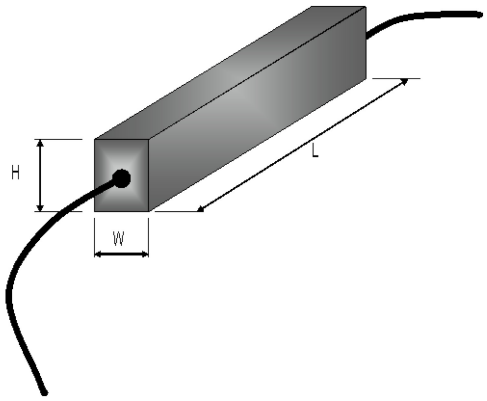
Part 3-6: Multimode mechanical fibre splice for use in an outdoor protected environment (Cat U)

Description		Performance	
Type:	Fibre splice	Application:	EN 61753-1, Category U with extension of lower temperature to -40 °C
Style:	Mechanical		
Operating wavelength:	850 nm and 1 300 nm	Attenuation grades	≤ 0,25 dB maximum (97 %)
Fibre category	EN 60793-2-10 type A1a.1, A1a.2, A1a.3 and A1b	Return loss grades	≥ 20 dB

Related documents:

EN 60793-2-10	Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres (IEC 60793-2-10)
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	Fibre optic interconnecting devices and passive components performance standard – Part 1: General and guidance for performance standards (IEC 61753-1)

Outline and maximum dimensions:



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

1 Scope

1.1 Product definition

This European Standard contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements which a multimode mechanical splice will 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 60793-2-10 type A1a.1, A1a.2, A1a.3 and A1b multimode 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:

- cross sectional profile with width, height or diameter (in millimetres);
- 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 should be maintained using a recognised quality assurance programme.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 60793-2-10, *Optical fibres — Part 2-10: Product specifications — Sectional specification for category A1 multimode fibres (IEC 60793-2-10)*

EN 61753-1, *Fibre optic interconnecting devices and passive components performance standard — Part 1: General and guidance for performance standards (IEC 61753-1)*

EN 61300-2-1, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-1: Tests — Vibration (sinusoidal) (IEC 61300-2-1)*

EN 61300-2-4, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-4: Tests — Fibre/cable retention (IEC 61300-2-4)*

EN 61300-2-5, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-5: Tests — Torsion/twist (IEC 61300-2-5)*

EN 61300-2-7, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-7: Tests — Bending moment (IEC 61300-2-7)*

EN 61300-2-9, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-9: Tests — Shock (IEC 61300-2-9)*

EN 61300-2-17, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-18: Tests — Cold (IEC 61300-2-17)*

EN 61300-2-18, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-18: Tests — Dry heat — High temperature endurance (IEC 61300-2-18)*

EN 61300-2-22, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-22: Tests — Change of temperature (IEC 61300-2-22)*

EN 61300-2-26, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-26: Tests — Salt mist (IEC 61300-2-26)*

EN 61300-2-27, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-27: Tests — Dust — Laminar flow (IEC 61300-2-27)*

EN 61300-2-33, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-33: Tests — Assembly and disassembly of closures (IEC 61300-2-33)*

EN 61300-2-45, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-45: Tests — Durability test by water immersion (IEC 61300-2-45)*

EN 61300-2-46, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-46: Tests — Damp heat cyclic (IEC 61300-2-46)*

EN 61300-3-3, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-3: Examinations and measurements — Active monitoring of changes in attenuation and return loss (IEC 61300-3-3)*

EN 61300-3-4, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-4: Examinations and measurements — Attenuation (IEC 61300-3-4)*

EN 61300-3-6, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-6: Examinations and measurements — Return loss (IEC 61300-3-6)*

EN 61300-3-28, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-28: Examinations and measurements — Transient loss (IEC 61300-3-28)*

3 Description

3.1 General

A multimode mechanical fibre splice is a passive optical interconnection component which provides optical and mechanical continuity between two optical fibres. 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.

Some splices may have a limited reinstallation capability. In this case the re-installability shall be clearly stated and the re-installation test 9 in 8.3 shall be conducted.

3.2 Mechanical splice

An optical fibre mechanical splice body contains the following pre-assembled elements:

– an alignment device;

– a sealing and index matching gel inside;

– a fibre alignment activation device like a spring, wedge or plunger;

– a fibre clamping or fixing able to withstand axial fibre loads.

Mechanical splices designed for use with cables shall contain strain relief fixing.

3.3 Materials

Materials which are not specified or which are not specifically described are left to the discretion of the manufacturer. However, the following requirements shall be met.

– All materials that are likely to come in contact with personnel shall meet appropriate health and safety regulations.

– The sealing and index matching materials shall be compatible with the materials of the fibres and the mechanical splice parts.

– All components of the splice shall be resistant to solvents and degreasing agents that are typically used to clean and degrease fibres and cables.

– Metallic parts shall be resistant to the corrosive influences they may encounter during the lifetime of the product.

– Exterior polymer materials shall be resistant to mould growth.

3.4 Dimensions

Outline dimensions are specified. All other dimensions are left to the discretion of the manufacturer.

3.5 Colour and marking

Marking of the product or packaging shall be in the following order of precedence:

a) identification of manufacturer;

b) manufacturing date code: year/week;

c) manufacturer's part number;

d) variant identification number.

There is no preferred colour specified.