



SLOVENSKI STANDARD

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**Delilniki za optična vlakna in kabelske spojnice za optične komunikacijske sisteme
- Specifikacije izdelkov - 3-5. del: Zidna vtičnica**

Fibre organisers and closures to be used in optical fibre communication systems -
Product specifications - Part 3-5 Wall outlet

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ICS:

33.180.20	Povezovalne naprave za optična vlakna	Fibre optic interconnecting devices
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EUROPEAN STANDARD

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NORME EUROPÉENNE

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December 2015

ICS 33.180.20

English Version

Fibre organisers and closures to be used in optical fibre communication systems - Product specifications - Part 3-5: Wall outlet

Organiseurs et boîtiers de fibres à utiliser dans les systèmes de communication par fibres optiques - Spécifications de produits - Partie 3-5: Prise murale

LWL-Spleißkassetten und Muffen für die Anwendung in LWL-Kommunikationssystemen - Produktspezifikationen - Teil 3-5: Wandanschlussdose

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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European foreword

This document (EN 50411-3-5:2015) 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) 2016-06-11
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2018-06-15

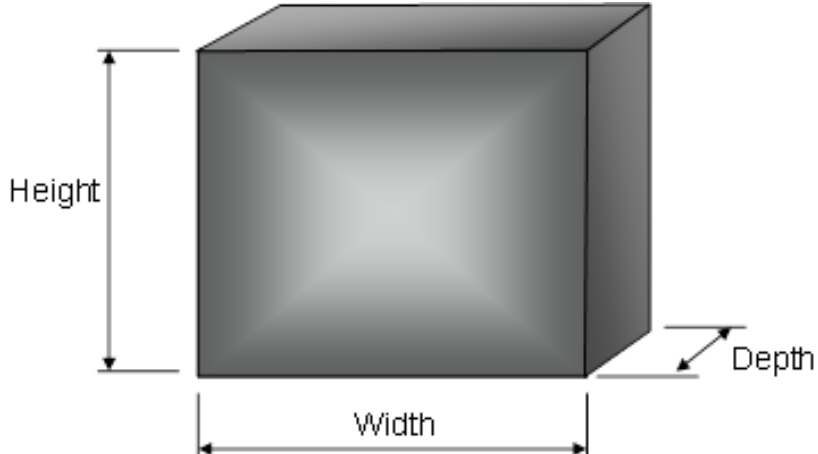
EN 50411, *Fibre organisers and closures to be used in optical fibre communication systems — Product specifications*, is currently composed of the following parts:

- *Part 2: General and guidance for optical fibre cable joint closures, protected microduct closures, and microduct connectors;*
- *Part 2-2: Sealed pan fibre splice closures Type 1, for category S & A;*
- *Part 2-3: Sealed inline fibre splice closures Type 1, for category S & A;*
- *Part 2-4: Sealed dome fibre splice closures Type 1, for category S & A;*
- *Part 2-5: Sealed closures for air blown fibre microduct, type 1, for category S & A;*
- *Part 2-8: Microduct connectors, for air blown optical fibres, Type 1;*
- *Part 2-9: Non-sealed closures for air blown fibre microduct cable, for category S & A;*
- *Part 2-10: Sealed fibre splice closures type 2, category G, for FTTH optical distribution networks;*
- *Part 3-1: Fibre management system, splice wall box, for category C & G;*
- *Part 3-2: Singlemode mechanical fibre splice;*
- *Part 3-3: Singlemode optical fibre fusion splice protectors;*
- *Part 3-4: Fibre management system, modular splice and connector wall box, for category C & A [currently at Enquiry stage];*
- *Part 3-5: Wall outlet [the present document];*
- *Part 3-6: Multimode mechanical fibre splice for use in an outdoor protected environment (Cat U);*

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- Part 3-8: Fibre management system, terminal equipment box type 1 for category C [currently at Formal Vote stage];
- Part 6-1: Unprotected microduct for category S and A.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Fibre organisers and closures to be used in optical fibre communication systems – Product specifications		
Part 3-5: Fibre management system, FTTH wall outlet, for category C		
	Description	Performance
Construction:	Wall /Flush/Trunking mounted outlet	Applications: Fibre line termination in FTTH networks for indoor controlled environments EN 61753-1 Category C Sealing performance: IP 40
Cable Fixing:	Mechanical	
Connector:	EN 50377 series EN 60603-7 series	
Fibre types:	EN 60793-2-50, B1 and B6	
Fibre management:	Integrated in wall outlet	
Related documents: EN 60529 <i>Degrees of protection provided by enclosures (IP Code) (IEC 60529)</i> EN 60793-2-50 <i>Optical fibres — Part 2-50: Product specifications — Sectional specification for class B single-mode fibres (IEC 60793-2-50)</i> EN 61753-1 <i>Fibre optic interconnecting devices and passive components — Part 1: General and guidance for performance standard (IEC 61753-1)</i> EN 61300 series <i>Fibre optic interconnecting devices and passive components — Basic test and measurement procedures (IEC 61300 series)</i>		
Shape		Maximum outline dimensions
		Width: 150 mm Height: 210 mm Depth: 60 mm

1 Scope

1.1 Product definition

This European Standard covers wall outlets for up to 4 SC foot-print adapters. Various connector types (e.g. SC, LC) can be implemented as long as the adapter fits in the SC foot-print dimensions.

A Wall Outlet is the passive end connection point of a fixed Single Mode fibre based FTTH network to the flexible network of service unit (CPE, ONT) indoor. Products defined by IEV 442-08-02 or IEV 723-09-22 can be considered as Wall Outlets. SI or ENTI are not part of this wall outlet specification.

This specification also covers the possibility of using hybrid (fibre/copper) wall outlets with 1 RJ-45 footprint.

Performance of copper cabling and connectivity is not in the scope of this document, but should be verified in line with EN 50346.

Wall outlets are placed in end user premises by installers and the contents are not intended to be user accessible. Wall outlets may be mounted using a number of techniques: surface mounted on a wall, patch boxes, trunking or raceway; flush mounted or between cable trunking. Cable entry points vary with mounting method: surface mounted or flush mounted boxes may require large holes at the rear of the wall outlet for cable entry requiring little or no strain relief, whereas boxes with cable entry visible to the end user will need cable sealing and strain relief.

Wall outlets covered in the product specification will include a fibre management system (FMS) for managing the incoming cables or fibres. The FMS may include trays for splicing pigtails to incoming cable/fibre.

This European Standard contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements of an optical fibre wall outlet in order for it to be categorized as an European Standard product.

1.2 Operating environment

The tests selected combined with the severity and duration is representative of indoor environments defined by:

EN 61753-1 category C Controlled 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 recognized 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 recognized quality assurance programme.

EN 50411-3-5:2015**1.5 Allowed fibre and cable types**

All EN 60793-2-50 fibres can be stored in the Wall Outlet with a minimum storage radius of 20 mm (up to a storage length of maximum 2 m).

Smaller storage radii down to 15 mm are possible with the EN 60793-2-50 B6_a fibre types, but in this case the reduction in mechanical reliability should be taken into account (see 4.2). If hybrid cable is used then only the fibre portion is considered in this product specification.

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 50377 (all parts), *Connector sets and Interconnect components to be used in optical fibre communication systems — Product specification*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

EN 60695-11-10, *Fire hazard testing — Part 11-10: Test flames — 50 W horizontal and vertical flame test methods (IEC 60695-11-10)*

EN 60754-1, *Test on gases evolved during combustion of materials from cables — Part 1: Determination of the halogen acid gas content (IEC 60754-1)*

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

EN 60825-2, *Safety of laser products — Part 2: Safety of optical fibre communication systems (OFCS) (IEC 60825-2)*

EN 61034-2, *Measurement of smoke density of cables burning under defined conditions — Part 2: Test procedure and requirements (IEC 61034-2)*

EN 61300-2-1:2009, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-1: Tests — Vibration (sinusoidal) (IEC 61300-2-1:2009)*

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

EN 61300-2-12:2009, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-12: Tests — Impact (IEC 61300-2-12:2009)*

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

EN 61300-3-1, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-1: Examinations and measurements — Visual examination (IEC 61300-3-1)*

EN 61300-3-3:2009, *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 61300-3-3:2009)*

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 Terms, definitions and abbreviations

For the purposes of this document, the following terms and definitions apply.

3.1 Terms and definitions

3.1.1

fibre management system

system to control fibre routing from the incoming to the out-going fibres, containing one or more splice cassettes and additional functional elements, and which provides a means for routing, storing and protecting of fibre splices, connectors or other passive optical devices in a predetermined order, from one cable sheath opening to another

3.1.2

microduct system

system that provides for routing air blown fibres or microduct fibre units, between hollow conduits (microducts), and interconnects the microducts by use of pneumatic connectors, tube welding, crimp connectors or push on connectors

3.2 Abbreviations

For the purposes of this document, the following abbreviations apply.

MD	Microduct
FMS	Fibre Management System
FPFT	Factory Polished Field Terminated

4 Description

4.1 Optical fibre wall outlet

The wall outlet provides:

- facilities for environmental protection,
- housing for a fibre management system,
- prevention of ingress of objects larger than 1 mm in diameter.

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This European Standard is also applicable to wall outlets used for blowing microduct cable or fibre. The design of a wall outlet housing shall allow the jointing of a minimum of one incoming cable to the specified numbers of outputs.

It is desirable that the wall outlet can be re-opened when necessary without interruption or disturbance of the traffic of the live circuits.

Examples of typical wall outlet applications are given in Figure 1.

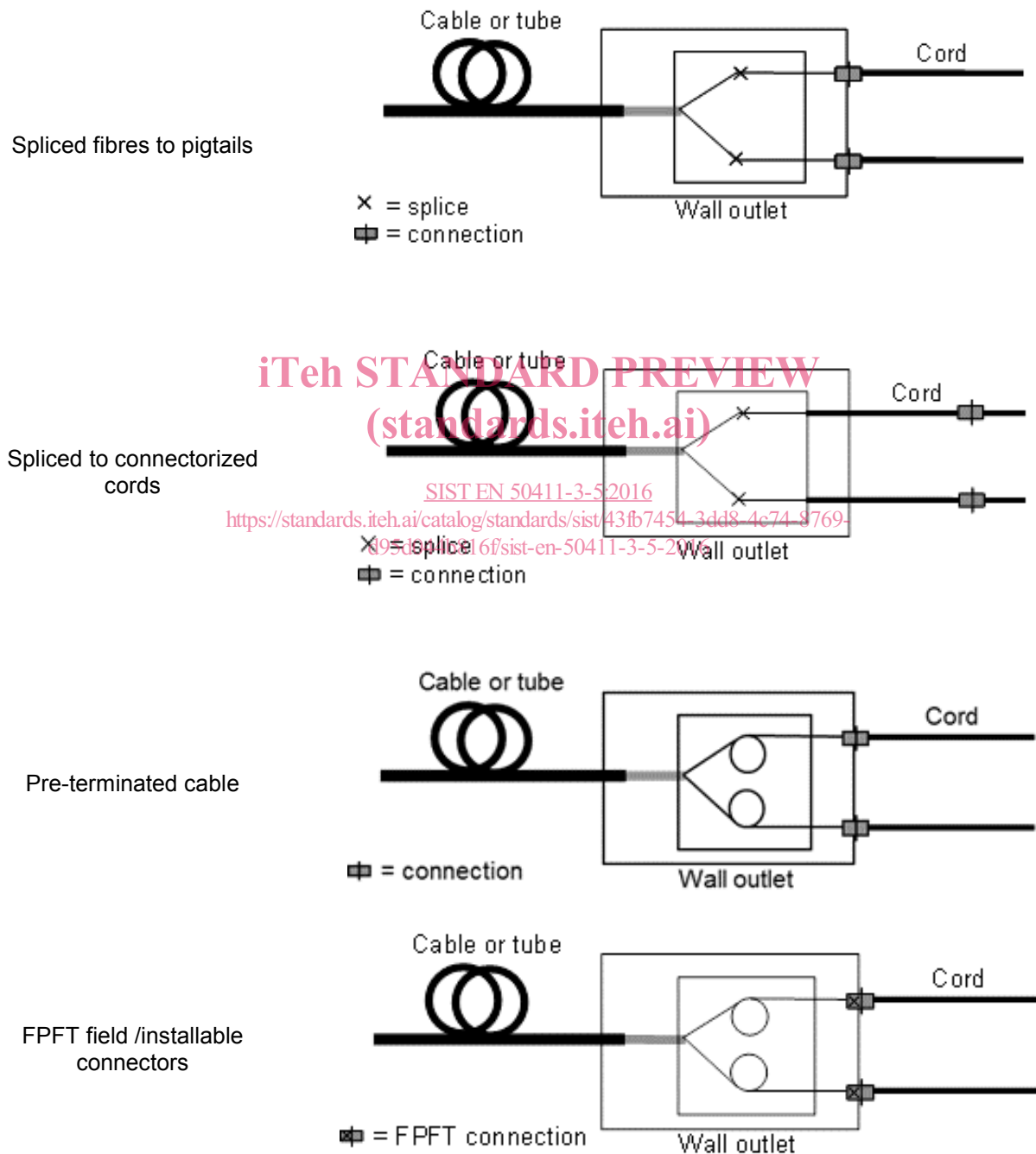


Figure 1 — Examples of wall outlet applications

4.2 Optical fibre minimum storage and bending radius

Up to 2 m of B6 fibres stored with a minimum 15 mm bend radius will meet the 10^{-5} maximum mechanical failure probability limit as recommended by ITU-T G.657. It should be noted that for certain B6_a1 fibre types a bending loss up to 0,5 dB at 1 550 nm and 2 dB at 1 625 nm can be expected in these conditions. Either using a less bend-sensitive fibre type B6_a2, B6_b2 or B6_b3 or reducing the stored length will reduce this bending loss.

4.3 Cable fixing

Cable or microduct fixing shall be secured by means of mechanical attachment commensurate with the type of wall outlet. If the wall outlet cable entry is through microduct, then axial movement of the fibre with respect to the microduct shall be taken into account.

4.4 FMS system

The fibre management system provides means for routing, storing and protecting optical fibre and/or fibre splices, connectors or other passive optical devices.

4.5 Materials

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

Wall outlet materials shall be compatible with each other and with the materials of the cables and/or microducts.

All components of the wall outlet 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, for example, white spirit or isopropyl alcohol.

4.6 Laser safety

Laser safety shall be in accordance with EN 60825-2. Flying leads should have protective caps fitted when not in use.

4.7 Marking and identification

Marking/identification of the 'variant number' (see Clause 5) to be on the product or packaging label along with the following:

- a) identification of supplier;
- b) manufacturing date code: year / month.