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I.S. EN 50411-3-1:2012

Fibre organisers and closures to be used in optical fibre communication systems - Product specifications -- Part 3-1: Fibre management system, splice wall box, for category C & G

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Fibre organisers and closures to be used in optical fibre communication systems - Product specifications - Part 3-1: Fibre management system, splice wall box, for category C & G

Organiseurs et boîtiers de fibres destinés à être utilisés dans les systèmes de communication par fibres optiques - Spécifications de produits - Partie 3-1: Système de gestion de fibres, boîtier mural d'épissures, pour les catégories C & G

LWL-Spleißkassetten und -Muffen für die Anwendung in LWL-Kommunikationssystemen - Produktnormen - Teil 3-1: Faser Management System, Wandspleißverteiler für die Kategorien C und G

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CENELEC

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This document (EN 50411-3-1:2012) 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) 2013-05-28
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Fibre organisers and closures to be used in optical fibre communication systems – Product specifications
Part 3-1: Fibre management system, splice wall box, for category C & G

Description	**Typical installation application**
Construction: Wall mounted box	**Track box** (2 cables minimum) **Spur box** (3 cables minimum) **Distribution box** (6 cables minimum).
Performance	
Applications: Optical fibre cable networks For indoor; for external above ground;	**IEC 61753-1:2007, category C** IEC 61753-1:2007, category G

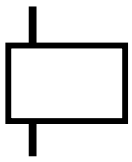
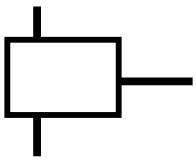
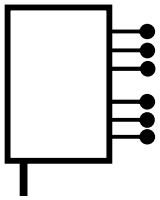
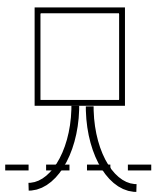
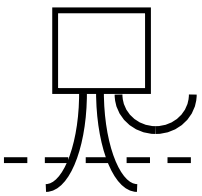
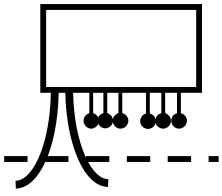
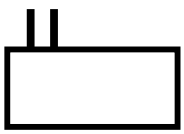
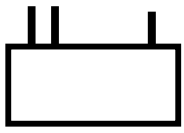
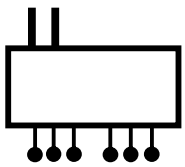
Fibre separation level - FMS splice trays:

Single circuit (>2 fibres per tray),
Single element (>12 fibres per tray),
Multiple element (>144 fibres per tray)
Single ribbon (>4 fibres per tray),
Multiple ribbon (>144 fibres per tray)

For reference on how fibre separation levels fits into the modularity of FMS organisers, see also FMS organiser options in Annexes C to E

Construction and splice tray capacity:

FMS –Number splice trays (maximum) – for each fibre separation level – SC, SE, SR, ME and MR

	S organiser			**M organiser**	
Number of trays needed for:	**Single circuit SC (4f)**	**Single element SE (12f)**	**Single ribbon SR (4f)**	**Multiple element ME (144f)**	**Multiple ribbon MR (144)**
Typical capacity 12 fibres	6	1	3	1	1
Typical capacity 144 fibres	36	12	36	1	1(12 f/R)
Box type - minimum no of cable entries:	**Track box - 2**		**Spur box - 3**		**Distribution box - 6**
Schematic diagrams (Cable entries can be in any orientation)					
Typical installations A Street cabinet or external configurations					
Typical installations B Office internal configurations					

1 Scope

1.1 Product definition

This European Standard covers wall boxes for up to 288 fibre splices. Wall boxes for connectors will be covered in a future part of the EN 50411-3 series.

This European Standard covers two environmental service requirements, for use inside a building under category C and externally of buildings under category G both to EN 61753-1:2007.

This European Standard contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements of a fully installed optical fibre wall box, in order for it to be categorised as an EN standard product.

The wall box must be suitable for fixing to a vertical internal or external surface above ground level.

The wall box is a housing containing a fibre management system, containing splice trays of various fibre separation levels, and may contain one or more of the following:

- storage and/or routing of cable;
- through-box/uncut fibre, cable storage;
- passive devices.

This document specifies the number of splice trays for each fibre separation level.

1.2 Operating environment

The tests selected combined with the severity and duration is representative of indoor and outside plant for above ground environments defined by:

EN 61753-1: - category C: Controlled environment

- category G: Ground level environment

1.3 Reliability

Whilst the anticipated service life expectancy of the product in this environment is 20 years, compliance with this European Standard 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 European Standard 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

All types of fibre are permitted for a FMS with a minimum bend radius of 30 mm. A minimum bend of 20 mm can only be used with a B 6 fibre. The box, once tested according to this product specification, will be also suited for other fibre types, for example bend insensitive, dispersion shifted, non-zero dispersion shifted and multimode fibres.

This wall box standard allows both single-mode and multi-mode fibre to be used and covers all IEC standard optical fibre cables with their various fibre capacities, types and designs as long as fitting in the box does not contravene the minimum bend radius.

The minimum bend radius of fibre depends on its type, and is applicable for all operational wavelengths:

- EN 60793-2-10, Type A1 multimode fibre is 30 mm;
- EN 60793-2-50, Type B 1.1 and B 1.3 singlemode fibre is 30 mm; (20 mm is accepted for total lengths less than 2 m)
- EN 60793-2-50, Type B6-a1, B6-a2 singlemode fibre (ITU-T G.657) is 20 mm (15 mm is accepted for total lengths less than 0,5 m)

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 50411-2	*Fibre organisers and closures to be used in optical fibre communication systems — Product specifications — Part 2: General and guidance for optical fibre cable joint closures, protected microduct closures, and microduct connectors*
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 60793-2-50:2008	*Optical fibres — Part 2-50: Product specifications — Sectional specification for class B single-mode fibres (IEC 60793-2-50:2008)*
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	*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 61034-1	*Measurement of smoke density of cables burning under defined conditions — Part 1: Test apparatus (IEC 61034-1)*
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 61300-2-9	*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 61300-2-26	*Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-26: Tests — Salt mist (IEC 61300-2-26)*
EN 61300-2-33	*Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-33: Tests — Assembly and disassembly of fibre optic closures (IEC 61300-2-33)*
EN 61300-2-34	*Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-34: Tests — Resistance to solvents and contaminating fluids of interconnecting components and closures (IEC 61300-2-34)*
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)*