SLOVENSKI STANDARD
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Konektorski pribor in povezovalne komponente za uporabo v optiļ nih komunikacijskih sistemih ï Specifikacije izdelka ï 10-1. del: Simpleks tip MU-PC, zaključ en na enorodnem vlaknu IEC 60793-2-50 kategorij B1 in B1.3, cirkonijeva tulka kategorije C

Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications -- Part 10-1: Type MU-PC simplex terminated on IEC 60793-2-50 category B1.1 and B1.3 singlemode fibre, with full zirconia ferrule category C

Steckverbindersätze und Verbindungsbauelemente für Lichtwellenleiter-Datenübertragungssysteme - Produktnormen -- Teil 10-1: Bauart MU-PC-Simplex zum Anschluss an Einmodenfasern der Typen B1.1 und B1.3 nach IEC 60793-2-50 mit Zirkonium-Stift für die Kategorie C

Jeux de connecteurs et composants d'interconnexion a utiliser dans les systemes de communication par fibres optiques - Spécifications de produit -- Partie 10-1: Type MU-PC simplex câblé sur une fibre unimodale des catégories B1.1 et B1.3 de la CEI 60793-2 -50, avec férule tout zircone, catégorie C

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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

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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 Unique Acceptance Procedure and was approved by CENELEC as EN 50377-10-1 on 2007-04-01.

This European Standard supersedes EN 50377-10-1:2003.

This document is updated to include the performance of the adaptor, and patch cord next to the pigtailed connector as defined in the previous version. It also includes latest attenuation and return loss grades as specified in IEC.

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)	2008-04-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-04-01

Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications

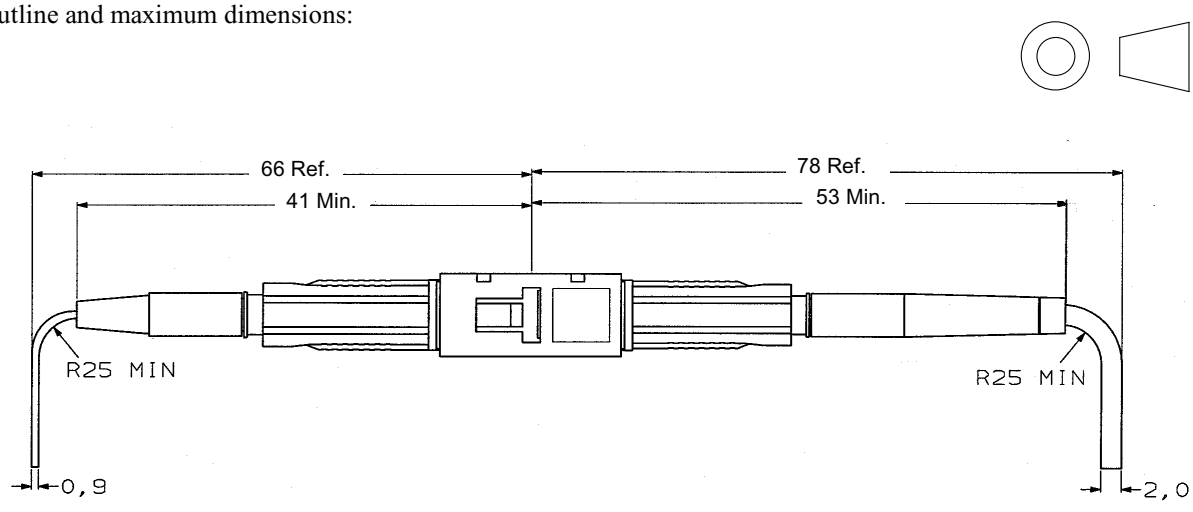
Part 10-1: Type MU-PC simplex terminated on IEC 60793-2-50 category B1.1 and B1.3 singlemode fibre, with full zirconia ferrule category C

Description		Performance	
Coupling mechanism:	Push-pull	Application:	For use in IEC category C (controlled environment)
Configuration:	Plug/adaptor/plug	Attenuation grades: (random mate)	B: ≤ 0,12 dB mean ≤ 0,25 dB for ≥ 97 % of measurements
Fibre category:	IEC 60793-2-50 Types B1.1 and B1.3		C: ≤ 0,25 dB mean ≤ 0,50 dB for ≥ 97 % of measurements
Cable type	See Table 3	Return loss grade:	2: ≥ 45 dB

Related documents:

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 61753-1	Fibre optic interconnecting devices and passive components performance standard - Part 1: General and guidance for performance standards (IEC 61753-1)
EN 61754-6	Fibre optic connector interfaces - Part 6: Type MU connector family (IEC 61754-6)
EN 61755-1	Fibre optic connector optical interfaces - Part 1: Optical interfaces for single mode non-dispersion shifted fibres - General and guidance (IEC 61755-1)
EN 61755-3-1 [1)]	Fibre optic connector optical interfaces - Part 3-1: Optical interface, 2,5 mm and 1,25 mm diameter cylindrical full zirconia PC ferrule, single mode fibre (IEC 61755-3-1, mod.)

Outline and maximum dimensions:



[1)] At draft stage.

Contents

1 Scope

1.1 Product definition

This standard contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements which a terminated and assembled single mode resilient alignment sleeve MU-PC simplex connector set (plug/adaptor/plug), adaptor and patchcord must meet in order for it to be categorised as an EN standard product.

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

1.2 Intermateability

Although all products conforming to the requirements of this standard will intermate, the resulting level of random attenuation performance will only be ensured in accordance with Table 1. The intention is that this will be true irrespective of the manufacturing source(s) of the product.

When intermating plug variants having different attenuation grades, the resulting level of attenuation can not be assured to be any better than the worst attenuation grade.
The intermating of a grade C plug with a grade B plug will result in an uncertain level of random attenuation performance.

Table 1 - Ensured level of random attenuation

Plug variant/Attenuation grade	C	B
C	C	C
B	C	B

1.3 Operating environment

The tests selected combined with the severities and durations are representative of a category C environment as defined in EN 61753-1.

1.4 Reliability

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

1.5 Quality assurance

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

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 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 61300-2-2	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-2: Tests - Mating durability (IEC 61300-2-2)
EN 61300-2-4	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-4Tests - 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 61300-2-6	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-6: Tests - Tensile strength of coupling mechanism (IEC 61300-2-6)
EN 61300-2-12	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-12: Tests - Impact (IEC 61300-2-12)
EN 61300-2-17	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-17: 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 61300-2-19	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-19: Tests - Damp heat (steady state) (IEC 61300-2-19)
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 61300-2-42	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-42: Tests - Static side load for connectors (IEC 61300-2-42)
EN 61300-2-44	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-44: Tests - Flexing of the strain relief of fibre optic devices (IEC 61300-2-44)
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 61300-3-10	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-10: Examinations and measurements - Gauge retention force (IEC 61300-3-10)
EN 61300-3-15	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-15: Examinations and measurements - Eccentricity of a convex polished ferrule end face (IEC 61300-3-15)
EN 61300-3-16	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-16: Examinations and measurements – End face radius of spherically polished ferrules (IEC 61300-3-16)
EN 61300-3-23	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-23: Examinations and measurements - Fibre position relative to ferrule end face (IEC 61300-3-23)
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)
EN 61300-3-34	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-34: Examinations and measurements - Attenuation of random mated connectors (IEC 61300-3-34)
EN 61300-3-42 [1)]	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-42: Examinations and measurements - Attenuation of single mode alignment sleeves and or adaptors with resilient alignment sleeves (IEC 61300-3-42) [1)]
EN 61753-1	Fibre optic interconnecting devices and passive components performance standard - Part 1: General and guidance for performance standards (IEC 61753-1)

[1)] At draft stage.

3 Description

The MU-PC connector is a single position plug connector set of plug/adaptor/plug configuration characterised by a cylindrical, spring loaded butting ferrule of 1,25 mm nominal diameter and a push-pull coupling mechanism. The optical alignment mechanism of the connectors is of a resilient sleeve style.

3.1 Plug

The plug features a cylindrical zirconia ferrule and a push-pull mechanism. It has a single male key which is used to limit and may be used to orientate, the relative rotation between mated connectors.
A cover (dustcap) to protect the ferrule end face when the connector is in the unmated condition shall be provided.

3.2 Adaptor

The adaptor has a zirconia ceramic resilient alignment sleeve. The mounting styles are duplex rectangular flange with snap-latches with a panel cut out as SC connector and simplex rectangular flange with snap-latches.

Covers (dust caps) shall be provided to protect each port of the adaptor.

Alternative material may be used for the sleeve that have directly compatible material properties to zirconia but the performance requirements must be met under all conditions

3.3 Materials

Materials which are not specified or which are not specifically described are left to the discretion of the manufacturer.

3.4 Dimensions

Outline dimensions and other dimensions necessary to ensure intermateability or which affect performance are specified. All other dimensions are left to the discretion of the manufacturer. Where the mating face limit dimensions are not in agreement with an IEC Interface Standard this is clearly stated.

3.5 Colour and marking

Marking of the product shall be in the following order of precedence:
- identification of manufacturer;
- manufacturing date code: year/week;
- manufacturers part number;
- variant identification number.

The following colour scheme is preferred:

Table 2 - Preferred colour scheme

Adaptor	De-latch housing
Blue	Blue
Preferred RAL number 5015	

4 Variants

4.1 Terminated plug

The following variants are permitted:

Table 3 - Plug variants

Variant No.	Fibre/Cable ∅ mm	Structure	Note
C01	0,7 - 1,4	Buffered fibre	1 fibre
C02	1,6 ± 0,2	Reinforced cable	1 fibre
C03	2,0 ± 0,2	Reinforced cable	1 fibre
B01	0,7 - 1,4	Buffered fibre	1 fibre
B02	1,6 ± 0,2	Reinforced cable	1 fibre
B03	2,0 ± 0,2	Reinforced cable	1 fibre

4.2 Adaptor

The following variants are permitted:

Table 4 - Adaptor variants

Variant No.	Format
01	Simplex
02	Rectangular flange - duplex

4.3 Identification of variants

Table 5 - Grade C plug variants

Variant number	Performance grade (Return loss)	Identification number
C01	2	EN 50377-10-1-C01-2
C02	2	EN50377-10-1-C02-2
C03	2	EN 50377-10-1-C03-2

Table 6 - Grade B plug variants

Variant number	Performance grade (Return loss)	Identification number
B01	2	EN 50377-10-1-B01-2
B02	2	EN 50377-10-1-B02-2
B03	2	EN 50377-10-1-B03-2

Table 7 - Adaptor variants

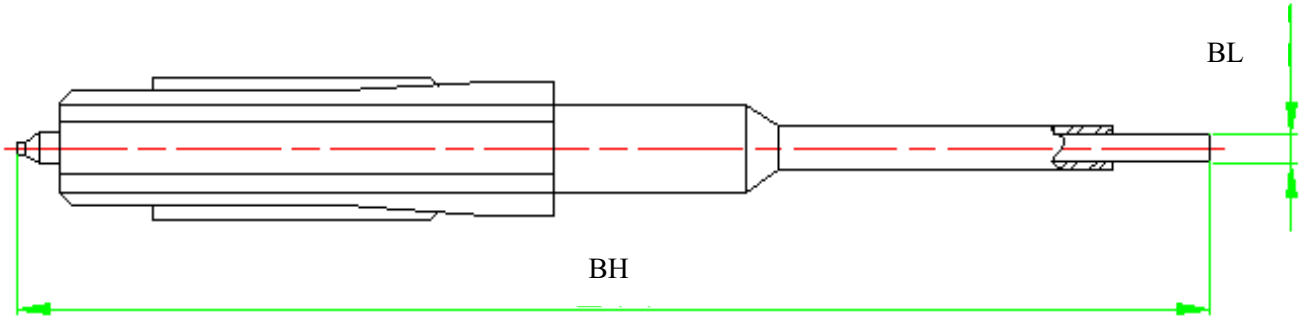
Variant number	Identification number
01	50377-10-1-01
02	50377-10-1-02

5 Dimensional requirements

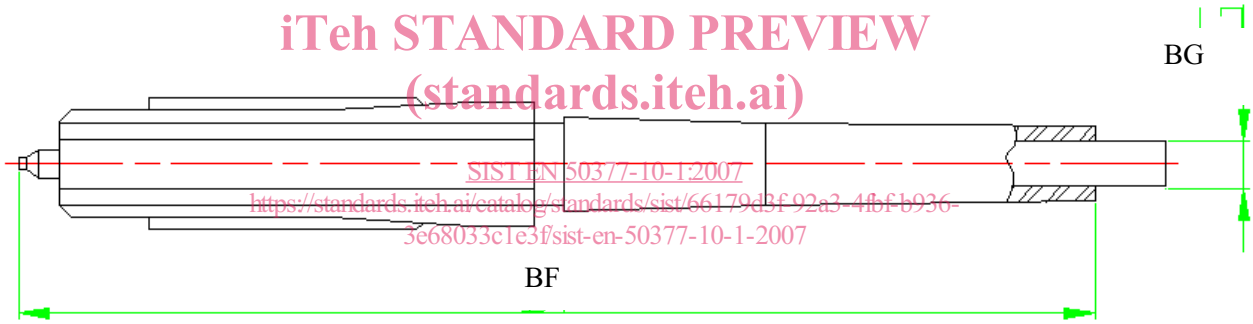
5.1 Outline dimensions

5.1.1 Plug variants

Variant No. C01/B01



Ref.	Dimensions min.	Mm	max.	Note
BL	0,9		1,1	
BH	-		54	



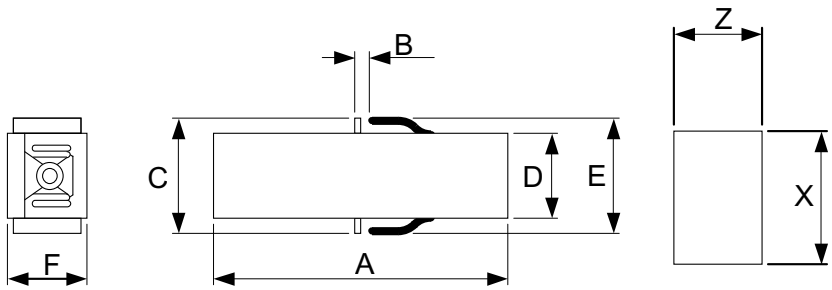
Variant No. /C02/C03/B02/B03

Ref.	Dimensions min.	mm	max.	Note
BG	1,6		2,2	
BF	-		54	

Figure 1 - Outline dimensions - Plug

5.1.2 Adaptor variants

Variant No. 01



NOTE Panel cut out: panel thickness should be between 1,2 mm and 1,7 mm.

Ref.	Dimensions mm		Note
	min.	max.	
A	26,0	26,4	
B	1,65	1,75	
C	9,4	9,8	
D	7,0	7,2	
E	9,4	9,8	
F	10,4	10,6	
X	10,75	10,85	
Z	7,35	7,45	

Figure 2 - Adaptor dimensions