

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces –
Part 4: Type SC connector family

Dispositifs d'interconnexion et composants passifs à fibres optiques –
Interfaces de connecteurs pour fibres optiques –
Partie 4: Famille de connecteurs du type SC



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING
DEVICES AND PASSIVE COMPONENTS –
FIBRE OPTIC CONNECTOR INTERFACES –****Part 4: Type SC connector family**

FOREWORD

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International Standard IEC 61754-4 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 1997 and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) addition of the duplex plug and adaptor connector interface;
- b) reconsideration of the overall content of the standard.

This bilingual version (2016-01) corresponds to the monolingual English version, published in 2013-07.

The text of this standard is based on the following documents:

FDIS	Report on voting
86B/3620/FDIS	86B/3652/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 61754 series, under the general title *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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- replaced by a revised edition, or
- amended.

The contents of the corrigendum of January 2014 have been included in this copy.

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC CONNECTOR INTERFACES –

Part 4: Type SC connector family

1 Scope

This part of IEC 61754 defines the standard interface dimensions for type SC family of connectors.

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.

IEC 61755-3-1, *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 61755-3-2, *Fibre optic connector optical interfaces – Part 3-2: Optical interface, 2,5 mm and 1,25 mm diameter cylindrical full zirconia ferrules for 8 degrees angled-PC single mode fibres*

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3 Description

The parent connector for the type SC connector family is a single position plug connector which is characterized by a 2,5 mm nominal ferrule diameter. It includes a push-pull coupling mechanism which is spring loaded relative to the ferrule in the direction of the optical axis. The plug has a single male key which may be used to orient and limit the relative position between the connector and the component to which it is mated. The optical alignment mechanism of the connector is of a resilient sleeve style.

This part of IEC 61754 defines the standard interface dimensions of active device receptacles for the type SC connectors. The receptacles are used to retain the connector plug and mechanically maintain the optical datum target of the plugs at a defined position within the receptacle housings.

4 Interfaces

This standard contains the following standard interfaces:

Interface IEC 61754-4-1: simplex plug connector interface – push/pull, PC

Interface IEC 61754-4-2: simplex adaptor connector interface – push/pull

Interface IEC 61754-4-3: duplex plug connector interface – push/pull, PC

Interface IEC 61754-4-4: duplex adaptor connector interface – push/pull

Interface IEC 61754-4-5: simplex plug connector interface – push/pull, APC 8°

Interface IEC 61754-4-6: duplex plug connector interface – push/pull, APC 8°

Interface IEC 61754-4-X1: simplex active device receptacle interface – for APC 8° connector plug

Interface IEC 61754-4-X2: simplex active device receptacle interface – for PC connector plug

Interface IEC 61754-4-X3: duplex active device receptacle interface – for APC 8° connector plug

Interface IEC 61754-4-X4: duplex active device receptacle interface – for PC connector plug

The plug of interface IEC 61754-4-1 and interface IEC 61754-4-3 has a ferrule with a spherically polished endface (PC). The plug of interface IEC 61754-4-5 and interface IEC 61754-4-6 has a ferrule with a spherically polished angled endface which may take any of the angled PC (APC) forms and realizes a physical contact.

Table 1 shows the intermateability of interface.

Table 1 – Intermateability of interface

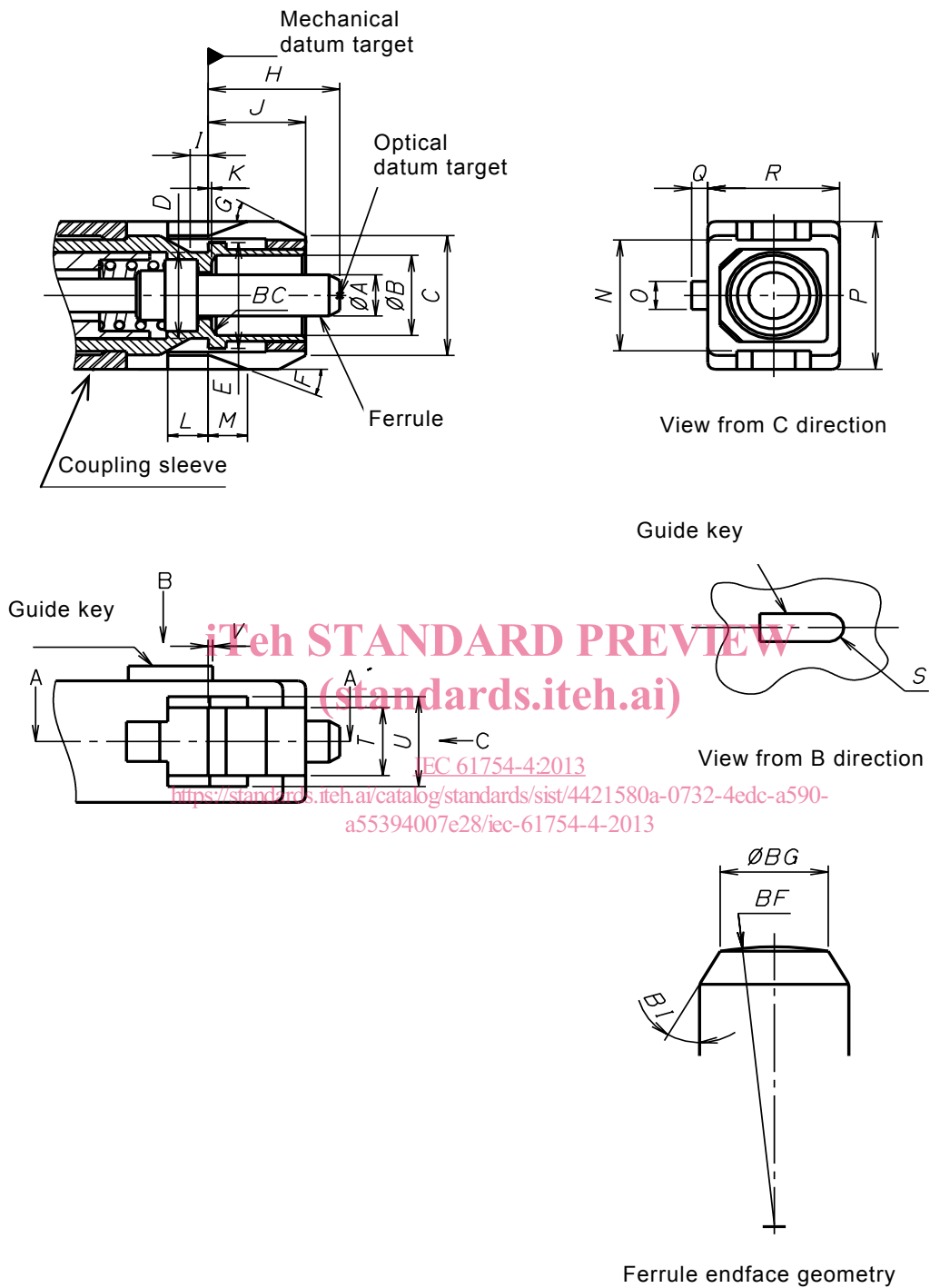
Plugs	Adaptors/active device receptacles interfaces					
	61754-4-2	61754-4-4	61754-4-X1	61754-4-X2	61754-4-X3	61754-4-X4
61754-4-1	Mate	Mate	Not mate	Mate	Not mate	Mate
61754-4-3	Not mate	Mate	Not mate	Not mate	Not mate	Mate
61754-4-5	Mate	Mate	Mate	Not mate	Mate	Not mate
61754-4-8	Not mate	Mate	Not mate	Not mate	Mate	Not mate

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Figure 1 is an example of a simplex plug connector interface. Table 2 gives dimensions of the simplex plug connector interface and Table 3 gives the grade of the simplex PC plug connector interface.

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A chamfer or radius is allowed to a maximum depth of 1,2 mm from the ferrule endface.



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Figure 1 – Simplex PC plug connector interface

Table 2 – Dimensions of the simplex PC plug connector interface

Reference	Dimensions		Remarks
	Minimum	Maximum	
<i>A</i>		2,500 mm	See Table 3
<i>B</i>	4,8 mm	4,9 mm	
<i>C</i>	6,8 mm	7,4 mm	
<i>D</i>	4,9 mm	5,3 mm	
<i>E</i>	6,7 mm	6,8 mm	
<i>F</i>	19°	23°	
<i>G</i>	25°	35°	
<i>H</i>	7,15 mm	7,5 mm	^a
<i>I</i>	0,8 mm	1,2 mm	
<i>J</i>	5,3 mm	5,5 mm	
<i>K</i>	–	0,05 mm	
<i>L</i>	2,11 mm	–	^b
<i>M</i>	2,0 mm	2,8 mm	^b and ^c
<i>N</i>	6,6 mm	6,8 mm	
<i>O</i>	1,6 mm	1,8 mm	
<i>P</i>	8,89 mm	8,99 mm	
<i>Q</i>	0,8 mm	1,0 mm	
<i>R</i>	7,29 mm	7,39 mm	
<i>S</i>	0,8 mm	0,90 mm	Radius
<i>T</i>	4,05 mm	4,15 mm	
<i>U</i>	5,4 mm	5,6 mm	
<i>V</i>	0 mm	0,5 mm	^b
<i>BC</i>	0°	0,5°	45° chamfer
<i>BF</i>	5 mm	30 mm	Radius, ^d
<i>BG</i>	0,8 mm	–	Diameter ^e
<i>BI</i>	25°	35°	Angle

^a Dimension *H* is given for plug endface when not mated. It is movable by a certain axial compression force, with direct contacting endfaces, and therefore dimension *H* is variable. Ferrule compression force shall be 7,8 N to 11,8 N when the dimension *H* is 7 mm ± 0,1 mm.

^b Coupling sleeve shall be movable toward right and left direction. These dimensions are given when the coupling sleeve is moved in its most right-direction position.

^c Dimension *M* shall be below 0 mm, when a coupling sleeve is moved to its most left-direction position.

^d Dome eccentricity of the spherical polished endface shall be less than 70 µm.

^e See IEC 61755-3-1.

Table 3 – Grade

Grade	Dimensions mm		Remarks
	A		
	Minimum	Maximum	
A	–	–	a
B	–	–	a
C	–	–	a
D	–	–	a
Am	2,497	2,500	b
Bm	2,497	2,500	b
Cm	2,494	2,500	b
^a See IEC 61755-3-1. ^b See IEC 61755-6-1.			

Figure 2 is an example of a simplex adaptor connector interface. Table 4 gives dimensions of the simplex adaptor connector interface and Table 5 gives the grade of the simplex adaptor connector interface.

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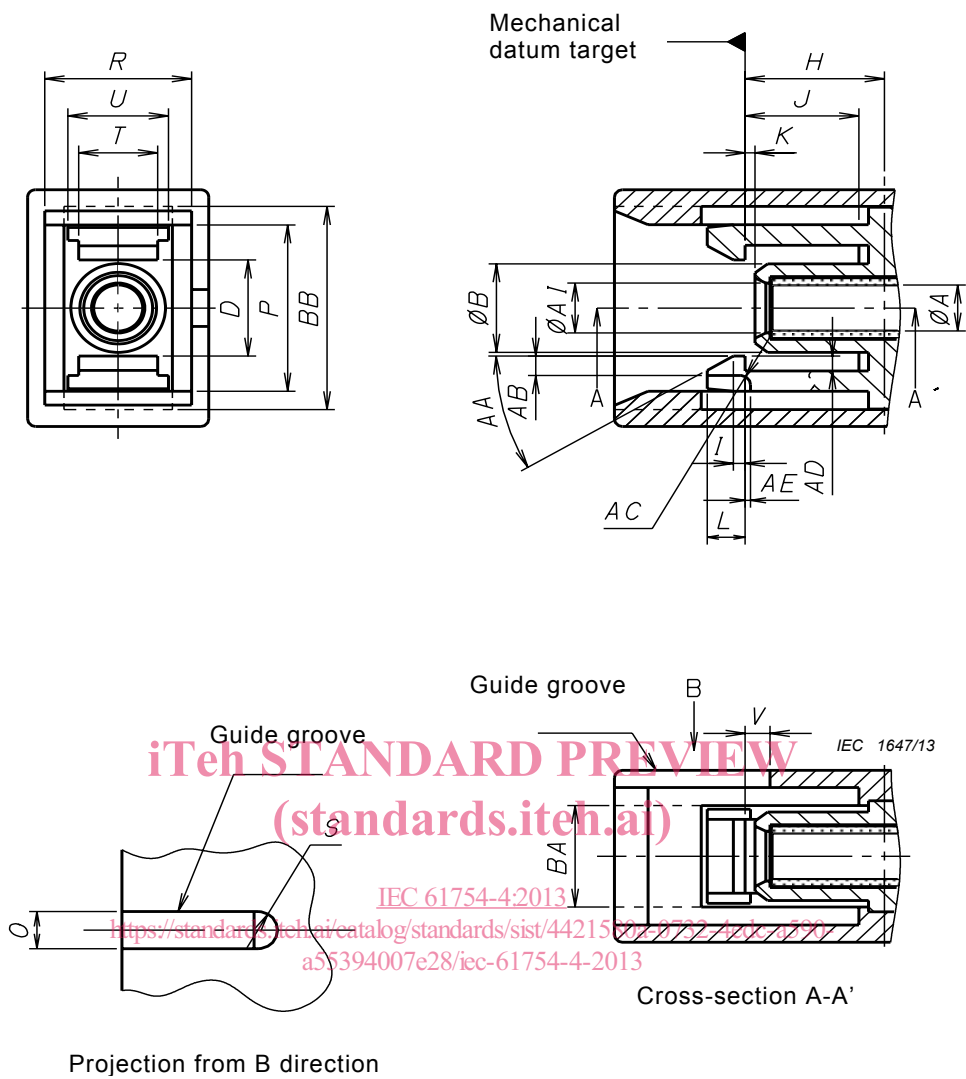


Figure 2 – Simplex adaptor connector interface

Table 4 – Dimensions of the simplex adaptor connector interface

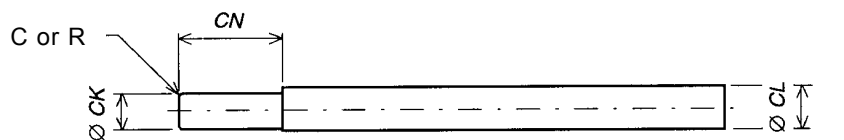
Reference	Dimensions		Remarks
	Minimum	Maximum	
A			See Table 5
B	4,69 mm	4,79 mm	
D	4,9 mm	5,5 mm	
H	6,9 mm	7,1 mm	
I	0,4 mm	0,8 mm	
J	5,51 mm	5,90 mm	
K	0,06 mm	1,00 mm	
L	1,9 mm	2,1 mm	
O	2,0 mm	2,2 mm	
P	9,0 mm	9,1 mm	
R	7,4 mm	7,5 mm	
S	1,0 mm	1,1 mm	Radius
T	3,80 mm	4,04 mm	
U	5,0 mm	5,3 mm	
V	0,6 mm	1,6 mm	
AA	27°	33°	Angle
AB	0,8 mm	1,0 mm	
AC	0,4 mm	0,6 mm	Radius
AD	0,7 mm	0,8 mm	
AE	0,4 mm	0,6 mm	
AI	2,7 mm	2,8 mm	
BA	5,4 mm	5,6 mm	^a
BB	10,8 mm	11,2 mm	^a

^a It may be of a structure as shown by an alternate long and short dash line shown in Figure 2.

Table 5 – Grade

Grade	Dimensions mm		Remarks
	A		
	Minimum	Maximum	
See Note	–	–	Resilient sleeve, ^a and Note
NOTE Add the grade number to the interface reference number.			
^a The connector alignment feature is a resilient sleeve. The feature shall accept a gauge pin shown in Figure 3 to the centre of the adaptor with a force of 2 N to 5,9 N under the condition that another gauge pin is inserted into the feature from the other side. The centre of the adaptor is defined by the right side position of the dimension H.			

Figure 3 is an example of a pin gauge for adaptor. Table 6 gives pin gauge dimensions.



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Figure 3 – Pin gauge for adaptor**Table 6 – Pin gauge dimensions**

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
CK	2,498 5	2,499 5	Surface roughness Grade N4 (0,2 µm radius)
CL	2,8	4,8	
CN	7	15	

Figure 4 is an example of a duplex PC plug connector interface. Table 7 gives dimensions of the duplex PC plug connector interface and Table 8 gives the grade of the duplex PC plug connector interface.

A chamfer or radius is allowed to a maximum depth of 1,2 mm from the ferrule endface.