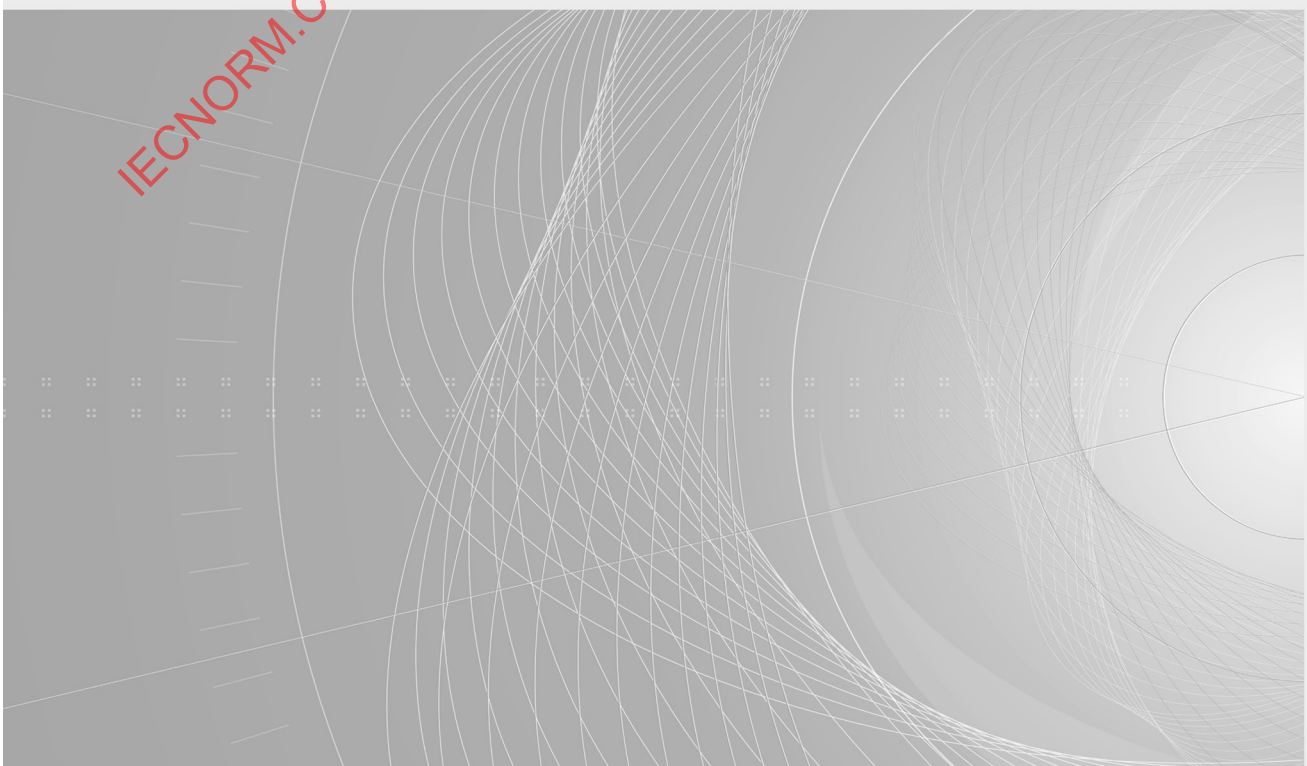
IEC 61754-13

Edition 3.0 2024-05
COMMENTED VERSION

INTERNATIONAL STANDARD

colour inside

Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 13: Type FC-PC connector family



IEC 61754-13:2024-05 CMV(en)

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

Part 13: Type FC-PC connector family

FOREWORD

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This commented version (CMV) of the official standard IEC 61754-13:2024 edition 3.0 allows the user to identify the changes made to the previous IEC 61754-13:2006 edition 2.0. Furthermore, comments from IEC SC 86B experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.

This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.

IEC 61754-13 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics. It is an International Standard.

This third edition cancels and replaces the second edition published in 2006. This edition constitutes a technical revision.

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

a) Revising normative reference reflecting the latest documents; **1**

b) Addition of intermateability in 5.2; **2**

c) Changes of dimensions of the plug connector interface in Table 2 and Table 3; **3**

d) Addition of Grade A_m, B_m and C_m in Table 3. **4**

The text of this International Standard is based on the following documents:

Draft	Report on voting
86B/4874/FDIS	86B/4911/RVD

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

The language used for the development of this International Standard is English.

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

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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

Part 13: Type FC-PC connector family

1 Scope

This part of IEC 61754 defines the standard interface dimensions for the type FC-PC family of connectors.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 61754-1, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 1: General and guidance* **5**

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* **6**

3 Terms and definitions

For the purposes of this document, the terms and definitions given in 61754-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.1
screw coupling mechanism **7**
coupling mechanism in which a plug connector is inserted into an adaptor connector or an active device receptacle, and a female screw formed on a coupling nut of the plug connector is tightened with a male screw formed on the adaptor connector or the active device receptacle

4 Description

The parent connector for type FC connector family is a single position plug connector set of plug~~/~~ and adaptor configuration which is characterized by a 2,5 mm nominal ferrule diameter. It includes a ~~thread~~ screw coupling mechanism, which is spring loaded relative to the ferrule in the direction of the optical axis. The coupling can be released by loosening the screw, and the plug connector can be detached from the optical adapter, the adaptor connector, or the active device receptacle. 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 connectors is of a rigid bore sleeve or a resilient sleeve style.

5 Interfaces

5.1 General

The following pages define the standard interfaces for the type FC connector family. This document contains the following standard interfaces:

- interface IEC 61754-13-1: Plug connector interface (see ~~Figures 1 and 2~~ Figure 1)
- interface IEC 61754-13-2: Adaptor connector interface (see ~~Figures 3 and 4~~Figure 2 and Figure 3)
- interface IEC 61754-13-3: Active device receptacle interface (see ~~Figures 5 and 6~~ Figure 4 and Figure 5)

The plug of interface IEC 61754-13-1 has a ferrule with a spherically polished ferrule endface, and realizes physical contact (PC).

NOTE The standard interface number is a number for distinguishing the standard interfaces, not the standard number.

5.2 Intermateability 8

Table 1 shows the intermateability of interfaces.

Table 1 – Intermateability of interfaces

Plugs	Adaptors	Active device receptacles
	IEC 61754-13-2	IEC 61754-13-3
IEC 61754-13-1	Mate	Mate

5.3 Interfaces and dimensions

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

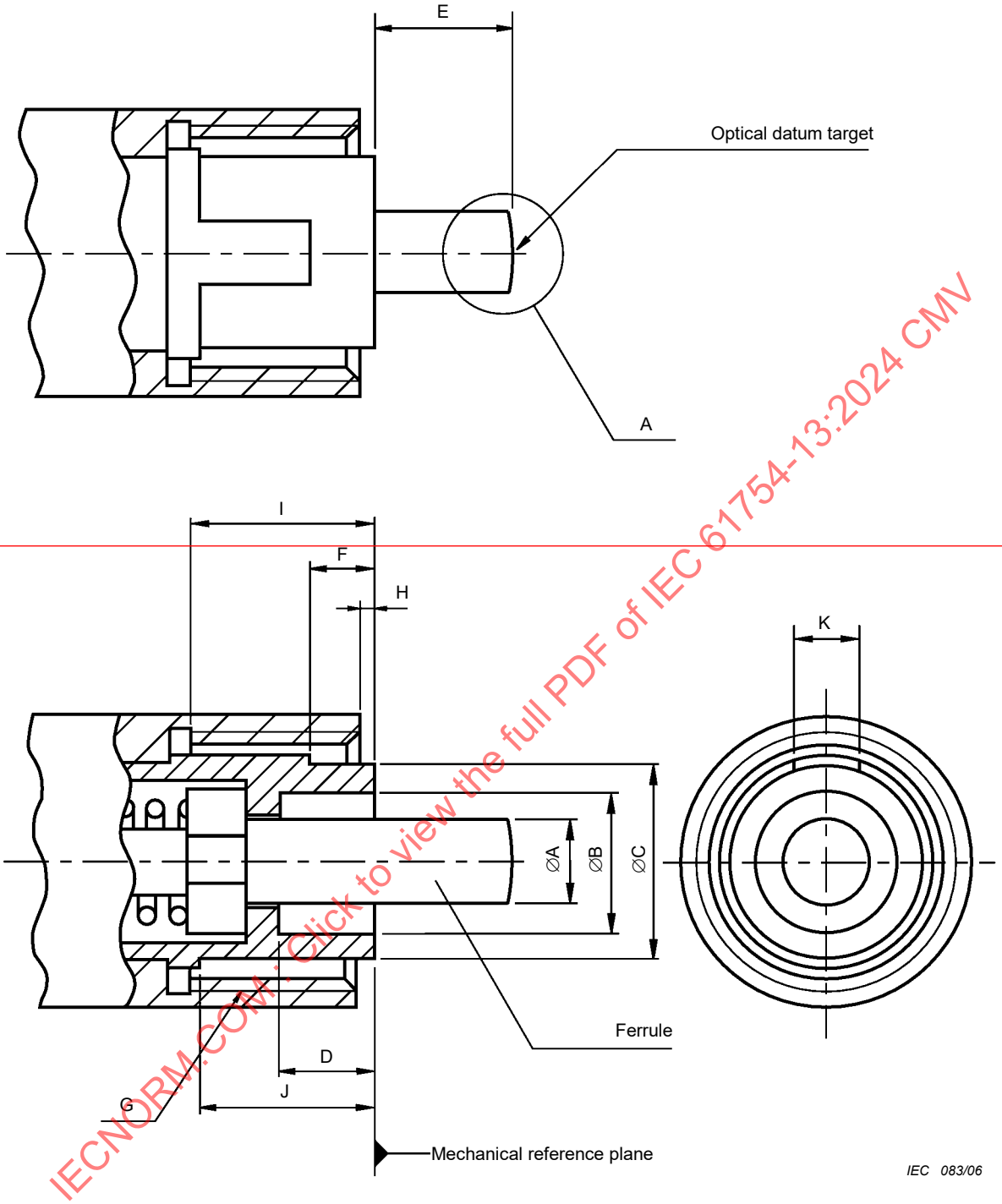
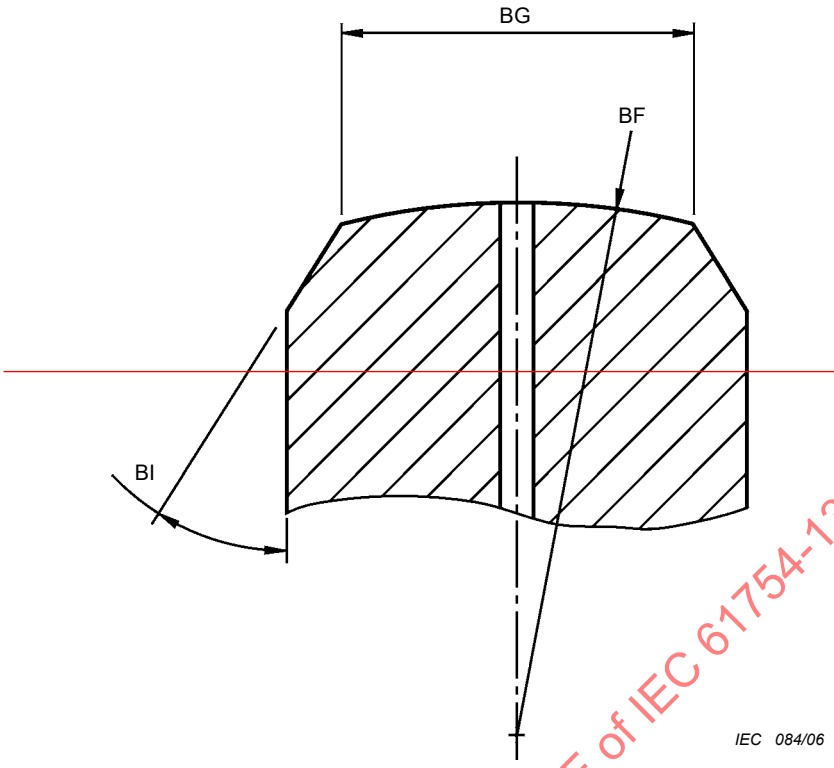


Figure 1 – Plug connector interface
(see Figure 2 and Tables 1 and 2 for dimensions)



~~**Figure 2 – Plug connector interface – Expanded view A**~~
~~(see Tables 1 and 2 for dimensions)~~

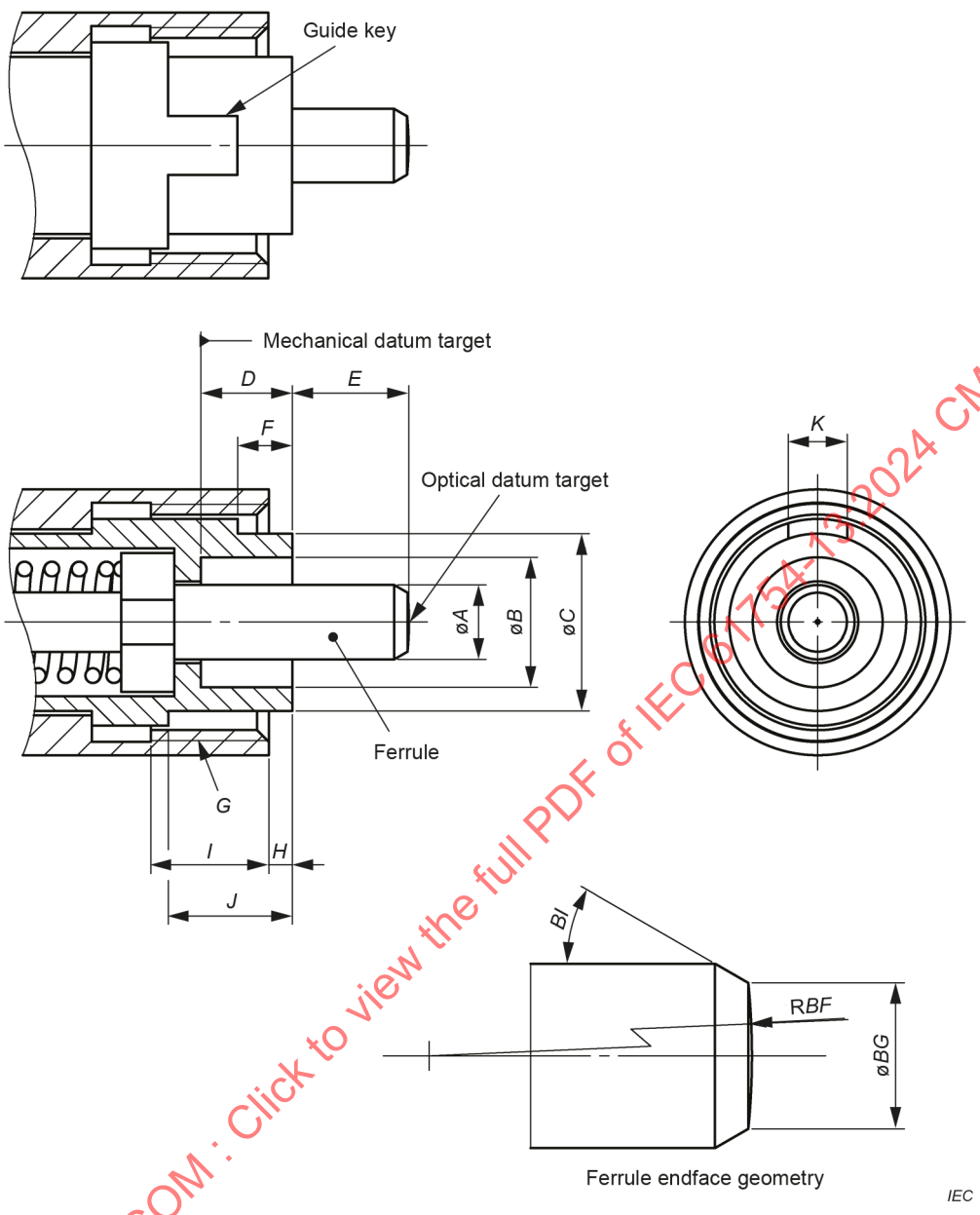


Figure 1 – Plug connector interface

Table 2 – Dimensions of the plug connector interface

Dimensions in millimetres

Reference	Dimensions			Remarks
	Minimum	~~Basic~~	Maximum	
A				Diameter, see Table 3, ferrule grade [a]
B	4,4		4,6	Diameter
C	5,8		6,0	Diameter
D	2,92		–	
E	3,75		4,10	[b]
F	1,77		2,77	
G	M8 × 0,75-6 H			[c]
H	–		1,1	[d]
I ~~e~~	3,5		–	
J	3,95		–	
K	1,86		2,14	
BF	~~5~~		~~30~~	Radius [e]
	See IEC 61755-3-1 **9**			
BG	See IEC 61755-3-1 **10**			Diameter~~, see Table 2, ferrule grade~~ [a]
BI(°)	25		35	Degree [a]

a) The outside diameter of the ferrule may be less than 2,498 mm in the range of 1,~~2~~8 mm **11** from the tip rearwards.

b) Dimension *E* is given for a plug endface when not mated. It is movable by a certain axial compression force, with direct contacting endfaces, and therefore dimension *E* is variable with a minimum length of 3,6 mm.

Ferrule compression force shall be 7,8 N to 11,8 N when dimension *E* is from 3,6 mm to 3,7 mm. Forces shall be validated for connectors with no fibre, primary coated fibre, or buffered fibre only. **12**

c) M8 × 0,75 indicates a metric screw thread with a nominal diameter of 8 mm and a pitch of 0,75 mm. 6H represents the class of fit. It requires a way of escape from the thread rearwards.

d) The coupling sleeve shall be movable towards right and left directions. This dimension is given when the coupling sleeve is moved furthermost to the right.

e) Dome eccentricity of the spherically polished endface shall be less than 0,05 mm.

~~**Table 2 – Plug connector interface (Figures 1 and 2) – Ferrule grade**~~

~~Grade~~	~~A~~ ~~mm~~		~~BG~~ ~~mm~~	
	~~Minimum~~	~~Maximum~~	~~Minimum~~	~~Maximum~~
~~1~~	~~2,4985~~	~~2,4995~~	~~1,75~~	~~2,26~~
~~2~~	~~2,4980~~	~~2,5000~~	~~1,75~~	~~2,26~~
~~3~~	~~2,4970~~	~~2,5000~~	~~1,75~~	~~2,26~~
~~4~~	~~2,4940~~	~~2,5000~~	~~1,75~~	~~2,26~~

Table 3 – Grade characteristics for plug connector 13

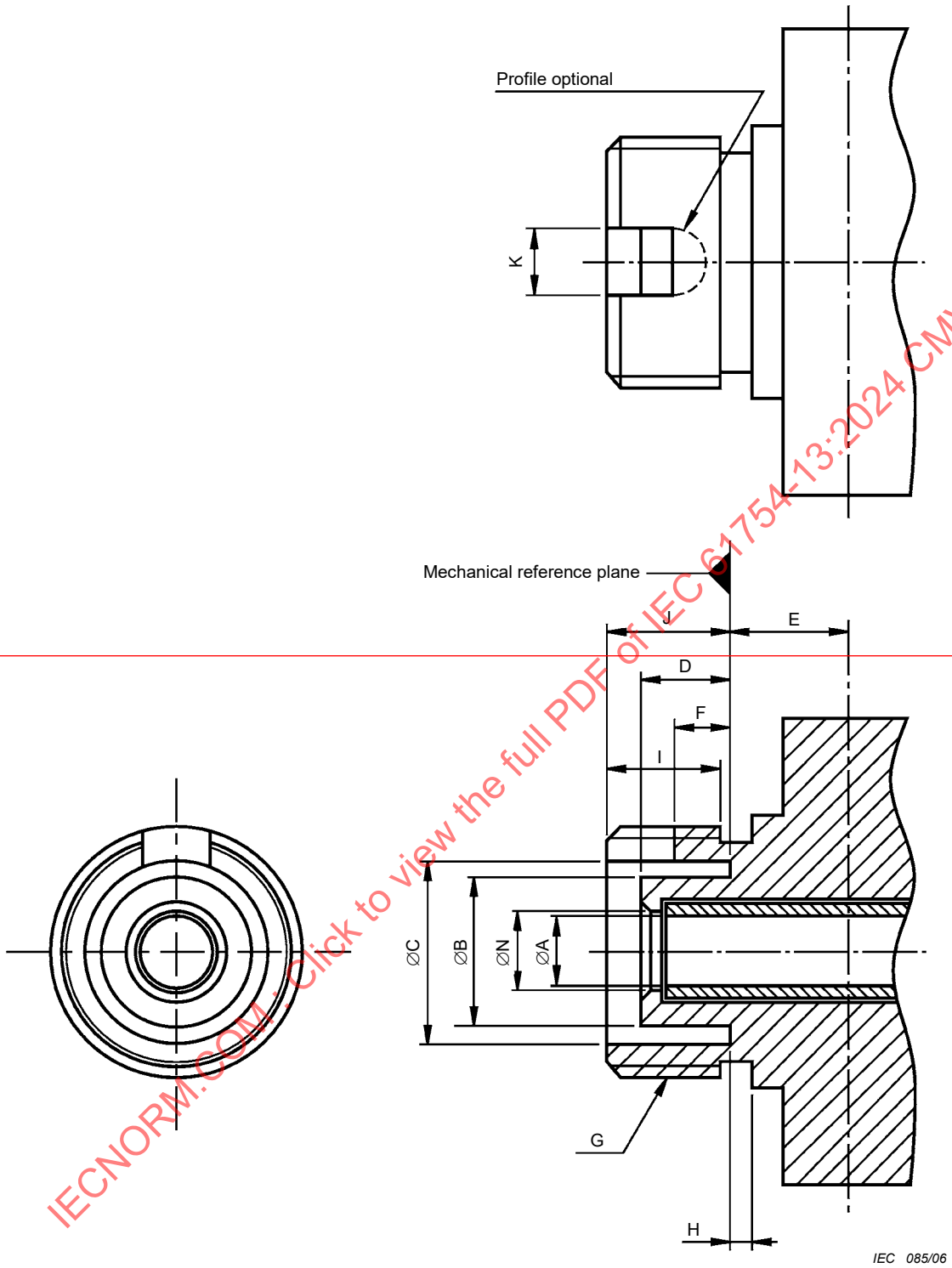
Dimensions in millimetres

Grade	Dimensions	
	A	
	Minimum	Maximum
A [a)]	Refer to IEC 61755-3-1	
B [a)]	Refer to IEC 61755-3-1	
C [a)]	Refer to IEC 61755-3-1	
D [a)]	Refer to IEC 61755-3-1	
A_m [a), b)]	Grade not specified at this time	
B_m [a), b)]	2,497	2,500
C_m [a), b)]	2,494	2,500

a) Add grade number to the interface reference number from 5.1.

b) See IEC 63267-2-1 for guidance.

Figure 2 is an example of an adaptor connector interface. Table 4 gives dimensions of the adaptor connector interface.



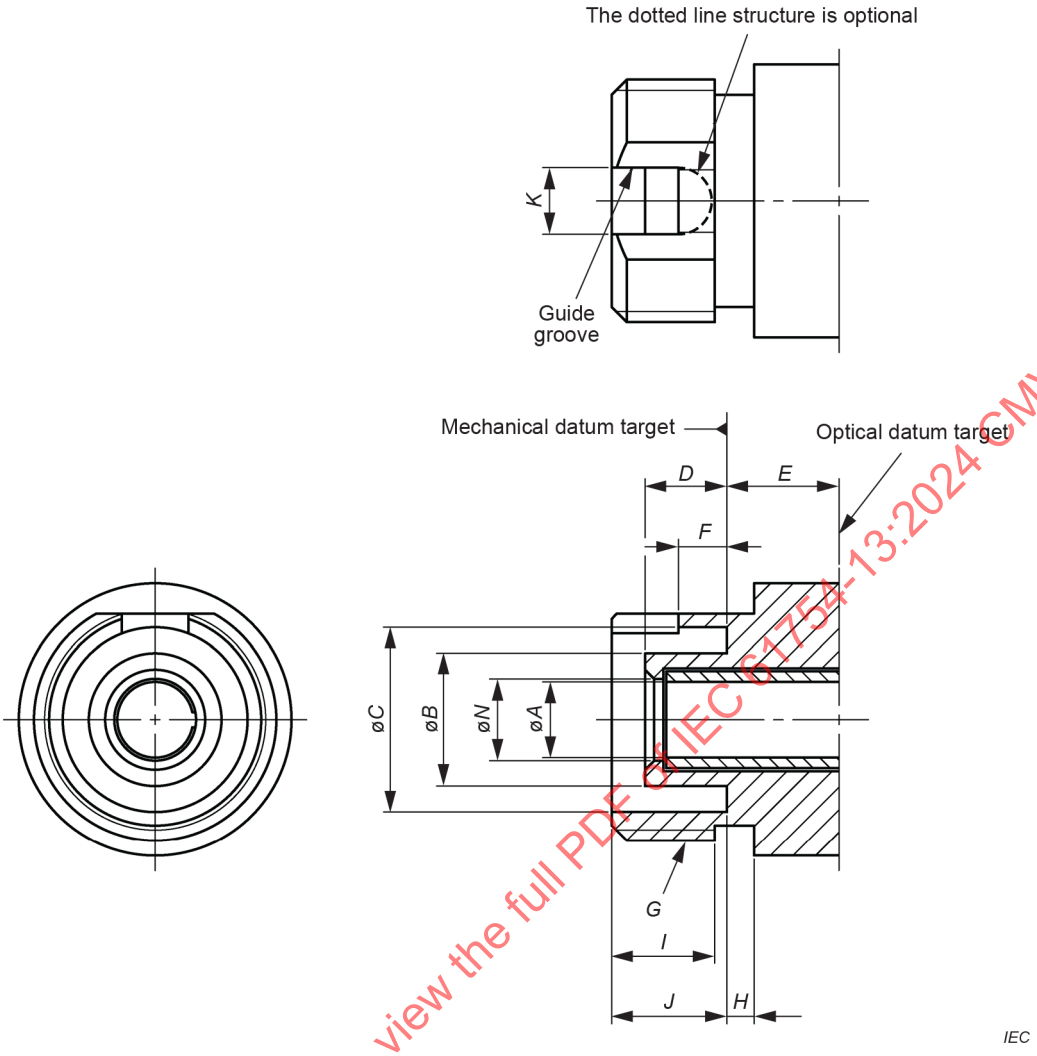


Figure 2 – Adaptor connector interface

Table 4 – Dimensions of the adaptor connector interface

Dimensions in millimetres

Reference	Dimensions		Remarks
	Minimum	Maximum	
A			Diameter, resilient alignment sleeve [a]
B	3,99	4,38	Diameter
C	6,01	6,20	Diameter
D	2,15	2,9	
E	3,6	3,7	
F	0,75	1,74	[c]
G	M8 × 0,75-6g		[b]
H	0,4	–	
I ~~b~~	2,8	–	
J	3,65	3,9	
K	2,15	2,6	[c]
N	2,55	2,70	[d]

[a] The connector alignment feature is a resilient alignment sleeve. The feature shall accept a pin gauge to the centre of the adaptor with a force of 2 N to 5,9 N with another pin gauge inserted into the feature from the other side until both pin gauges butt each other. The pin gauge shall be of type 2,499 (see Table 5). The centre of the adaptor is defined by the right side position of the dimension *E*.

[b] M8 × 0,75 indicates a metric screw thread with a nominal diameter of 8 mm and pitch of 0,75 mm. 6g represents the class of fit.

It requires a way of escape from the thread rearwards.

[c] The minimum rectangular envelope for the keyway is defined by dimensions *K* and *F*.

[d] This dimension shall be applied to an adaptor having a resilient alignment sleeve.

Figure 3 is an example of a pin gauge for adaptor. Table 5 gives pin gauge dimensions.

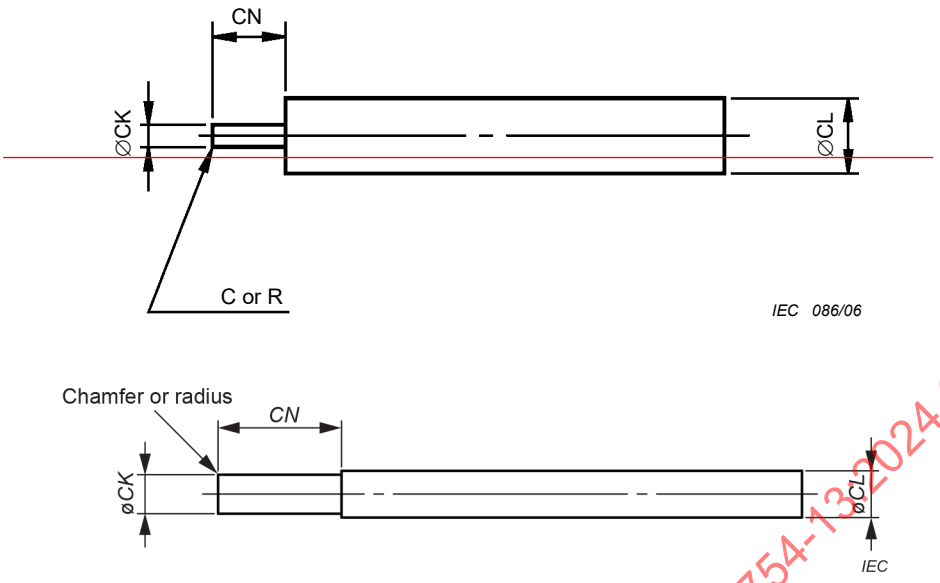


Figure 3 – Pin gauge for adaptor

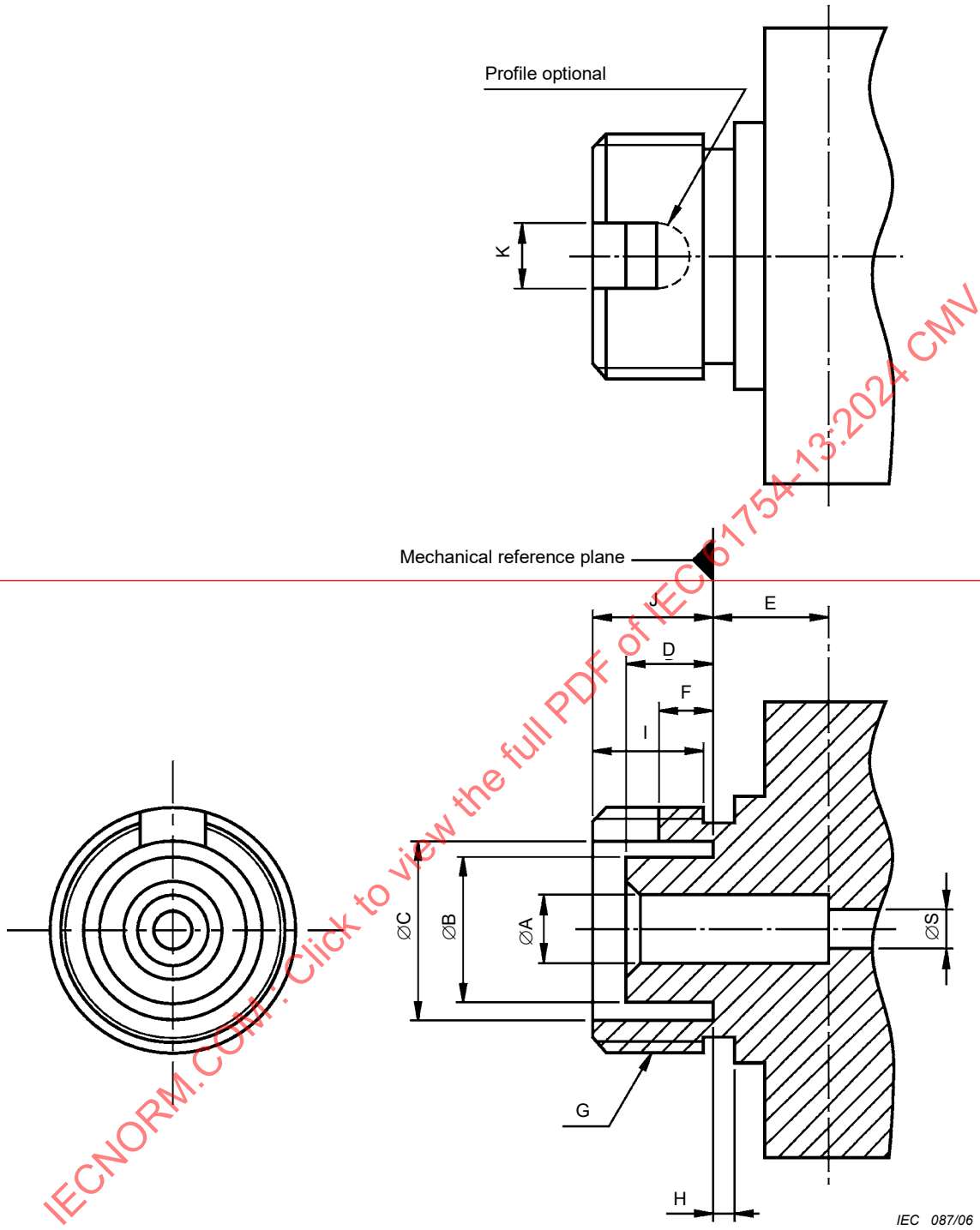
Table 5 – Pin gauge ~~grade~~ dimensions

Dimensions in millimetres

Pin gauge grade [a]	*CK*		*CL*		*CN*		Remarks
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	
2,499	2,498 5	2,499 5	2,8	4,8	7	15	Resilient sleeve
[a] Surface roughness should be grade N4 (0,2 µm Ra) and cylindricity is less than 0,5 µm.							

Figure 4 is an example of an active device receptacle interface. Table 6 gives dimensions of the active device receptacle interface.

Table 7 gives alignment feature grade of the active device receptacle interface.



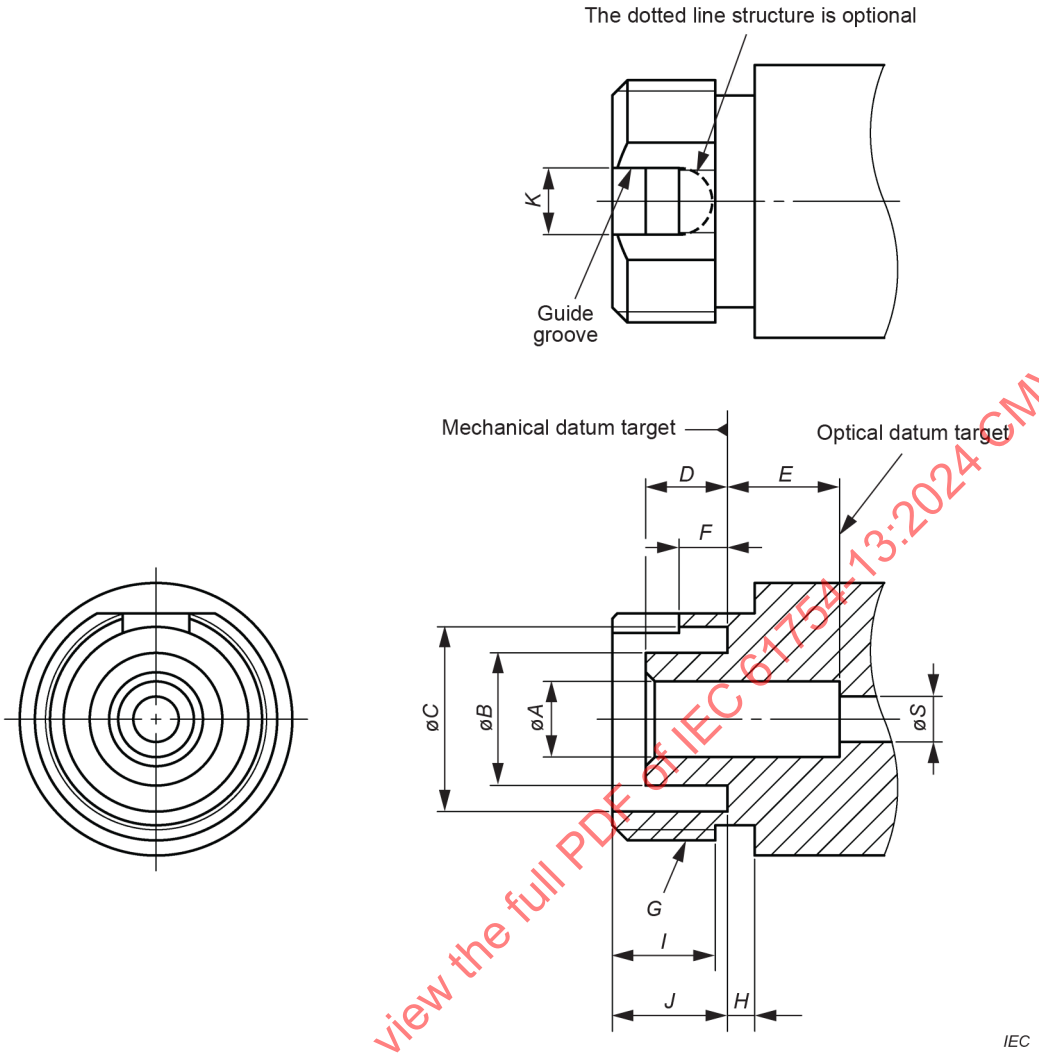


Figure 4 – Active device receptacle interface

Table 6 – Dimensions of the active device receptacle interface

Dimensions in millimetres

Reference	Dimensions		Remarks
	Minimum	Maximum	
A			Diameter, see Table 7 a)
B	3,99	4,38	Diameter
C	6,01	6,20	Diameter
D	2,15	2,9	
E	3,6	3,7	
F	0,75	1,74	
G	M8 × 0,75-6g		b)
H	0,4	–	
I ~~b~~	2,8		
J	3,65	3,9	
K	2,15	2,6	c)
S	0,5	2,5	Diameter

a) The connector alignment feature is a rigid bore sleeve or a resilient alignment sleeve. Dimension *A* defines the inner diameter of the alignment feature.

b) M8 × 0,75 indicates a metric screw thread with a nominal diameter of 8 mm and pitch of 0,75 mm. 6g represents the class of fit.

It requires a way of escape from the thread rearwards.

c) The minimum rectangular envelope for the keyway is defined by dimensions *K* and *F*.

Table 7 – Alignment feature grade of the active device receptacle interface ~~– Alignment sleeve grade (see Figure 5)~~

Dimensions in millimetres

Grade	*A*		Remarks
	Minimum	Maximum	
1	2,500	2,502	Rigid bore sleeve a), c)
2	2,501	2,504	
3	2,501	2,506	
~~4~~	2,501	2,525	
x			Resilient alignment sleeve b), c)

a) The connector alignment feature is a rigid bore sleeve. The dimension *A* shall be tested using two pin gauges. One pin gauge has the pin gauge grade number 1 µm larger than maximum value of the dimension *A*, the other pin gauge has the pin gauge grade number 1 µm smaller than the minimum value of the dimension *A*. The appropriate pin gauge shall be selected from the pin gauge grade table.

b) The connector alignment feature is an alignment sleeve. The feature shall accept a pin gauge to the centre of the adaptor with a force of 2 N to 5,9 N with another pin gauge inserted into the feature from the other side until both pin gauges butt each other. The pin gauge shall be ~~No.~~ the grade of 2,499 in Table 8.

c) Add grade number to the interface reference number from 5.1.

Figure 5 is an example of a pin gauge for active device receptacle. Table 8 gives pin gauge dimensions.

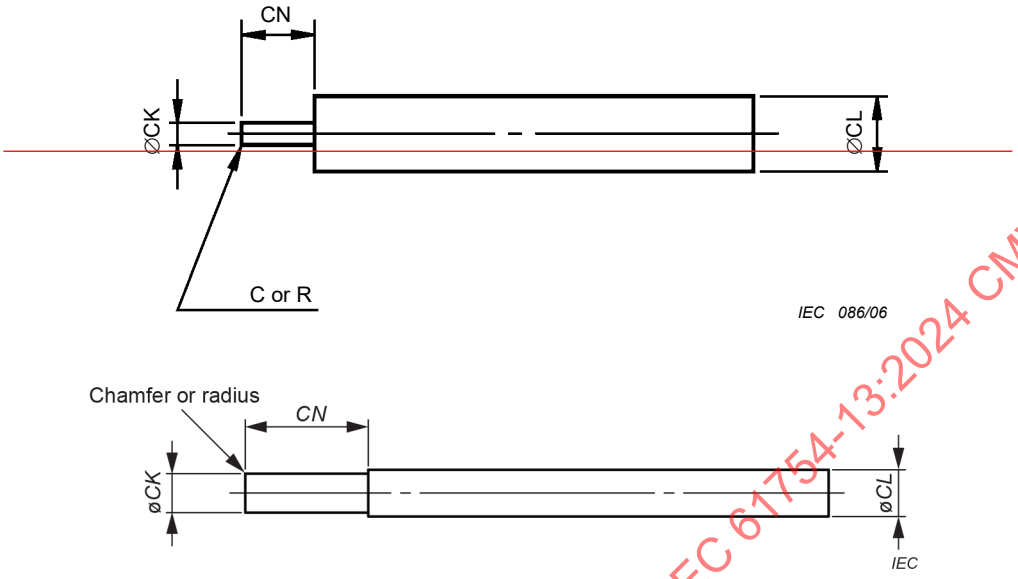


Figure 5 – Pin gauge for active device receptacle

Table 8 – Pin gauge ~~grade~~ dimensions

Dimensions in millimetres

Pin gauge grade [a]	*CK*		*CL*		*CN*		Remarks
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	
2,499	2,498 5	2,499 5	2,8	4,8	7	15	Resilient sleeve and rigid bore sleeve
2,500	2,499 5	2,500 5					Rigid bore sleeve
2,503	2,502 5	2,503 5					
2,505	2,504 5	2,505 5					
2,507	2,506 5	2,507 5					
2,526	2,525 5	2,526 5					

[a] Surface roughness should be grade N4 (0,2 µm radian) and the cylindricity is less than 0,5 µm.

Bibliography

IEC 61300-3-22, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-22: Examinations and measurements – Ferrule compression force*

IEC 63267-2-1, *Fibre optic interconnecting devices and passive components – Connector optical interfaces for enhanced macro bend multimode fibres – Part 2-1: Connection parameters of physically contacting 50 µm core diameter fibres – Non-angled*

List of comments

1 IEC 61754-1 is added to be referred to terminology.

IEC 61755-3-1 is added to be referred to some dimensions of the ferrule.

2 To clarify which interfaces are mateable, like as other IEC 61754 series documents.

3 To align with the latest IEC 61755-3-1.

4 To align with the latest IEC 63267-2-1.

5 Added to be referred to terminology.

6 Added to be referred to some dimensions of ferrule in Table 2 and Table 3.

7 Added to explain the feature of the coupling mechanism of FC connector.

8 Added to clarify which interfaces are mateable, like as other IEC 61754 series documents.

9 Changed to be aligned with the latest IEC 61755-3-1.

10 Changed to be aligned with the latest IEC 61755-3-1.

11 Changed to be harmonized with the latest IEC 61754-4, because typical FC connector products use the same cylindrical zirconia ferrule with SC connectors.

12 Added because the cord elements such as tension members and sheaths affect the test results of ferrule compression force, like the latest IEC 61754-20 was also added.

13 Grade A to D: changed to be aligned with IEC 61755-3-1.

Grade A_m to C_m: changed to be harmonized with the latest IEC 61754-4, because typical FC connector products use the same cylindrical zirconia ferrule with SC connectors.

IEC 61754-13

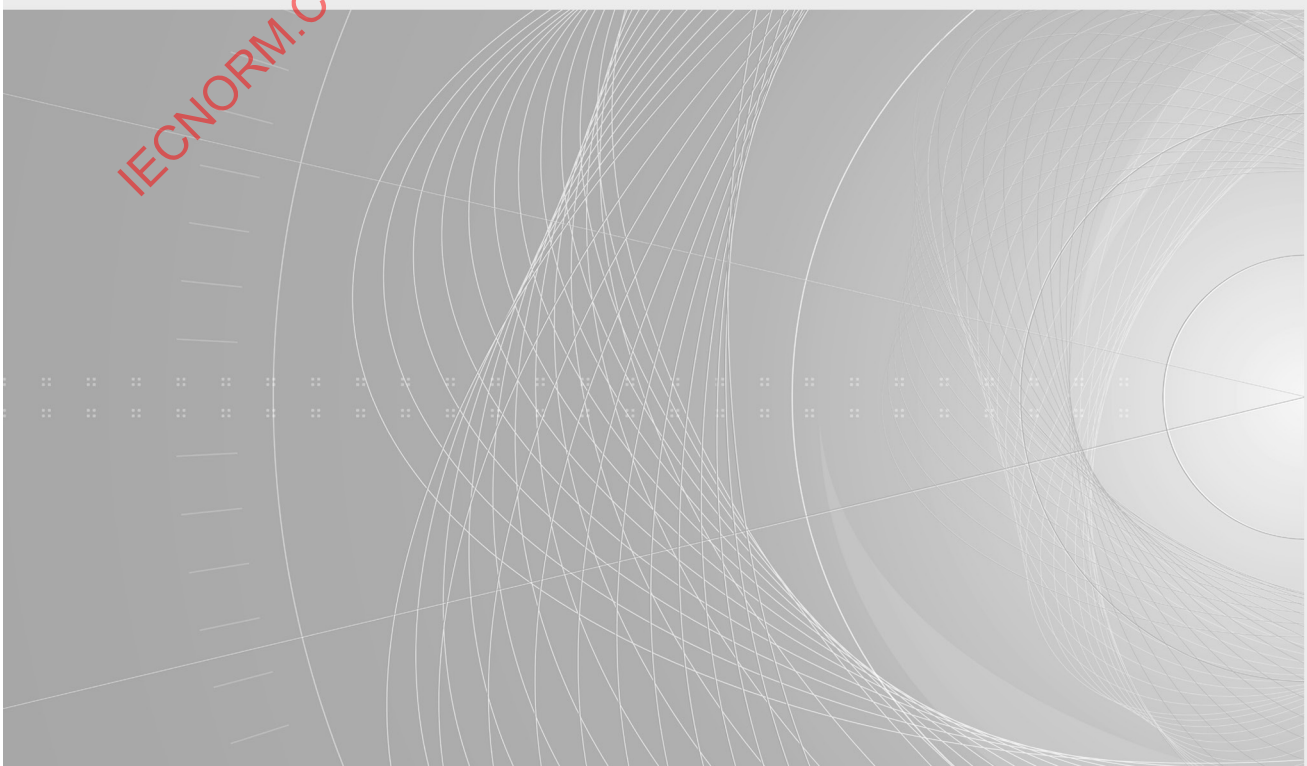
Edition 3.0 2024-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces –
Part 13: Type FC-PC connector family

Dispositifs d'interconnexion et composants passifs fibroniques – Interfaces de connecteurs fibroniques –
Partie 13: Famille de connecteurs de type FC-PC



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Part 13: Type FC-PC connector family

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IEC 61754-13 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics. It is an International Standard.

This third edition cancels and replaces the second edition published in 2006. This edition constitutes a technical revision.

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

a) Revising normative reference reflecting the latest documents;

b) Addition of intermateability in 5.2;

c) Changes of dimensions of the plug connector interface in Table 2 and Table 3;

d) Addition of Grade A_m, B_m and C_m in Table 3.

The text of this International Standard is based on the following documents:

Draft	Report on voting
86B/4874/FDIS	86B/4911/RVD

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

The language used for the development of this International Standard is English.

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

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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

Part 13: Type FC-PC connector family

1 Scope

This part of IEC 61754 defines the standard interface dimensions for the type FC-PC family of connectors.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 61754-1, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 1: General and guidance*

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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in 61754-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.1
screw coupling mechanism
coupling mechanism in which a plug connector is inserted into an adaptor connector or an active device receptacle, and a female screw formed on a coupling nut of the plug connector is tightened with a male screw formed on the adaptor connector or the active device receptacle

4 Description

The parent connector for type FC connector family is a single position plug connector set of plug and adaptor configuration which is characterized by a 2,5 mm nominal ferrule diameter. It includes a screw coupling mechanism, which is spring loaded relative to the ferrule in the direction of the optical axis. The coupling can be released by loosening the screw, and the plug connector can be detached from the optical adapter, the adaptor connector, or the active device receptacle. 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 connectors is of a rigid bore sleeve or a resilient sleeve style.

5 Interfaces

5.1 General

The following pages define the standard interfaces for the type FC connector family. This document contains the following standard interfaces:

- interface IEC 61754-13-1: Plug connector interface (see Figure 1)
- interface IEC 61754-13-2: Adaptor connector interface (see Figure 2 and Figure 3)
- interface IEC 61754-13-3: Active device receptacle interface (see Figure 4 and Figure 5)

The plug of interface IEC 61754-13-1 has a ferrule with a spherically polished ferrule endface, and realizes physical contact (PC).

NOTE The standard interface number is a number for distinguishing the standard interfaces, not the standard number.

5.2 Intermateability

Table 1 shows the intermateability of interfaces.

Table 1 – Intermateability of interfaces

Plugs	Adaptors	Active device receptacles
	IEC 61754-13-2	IEC 61754-13-3
IEC 61754-13-1	Mate	Mate

5.3 Interfaces and dimensions

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

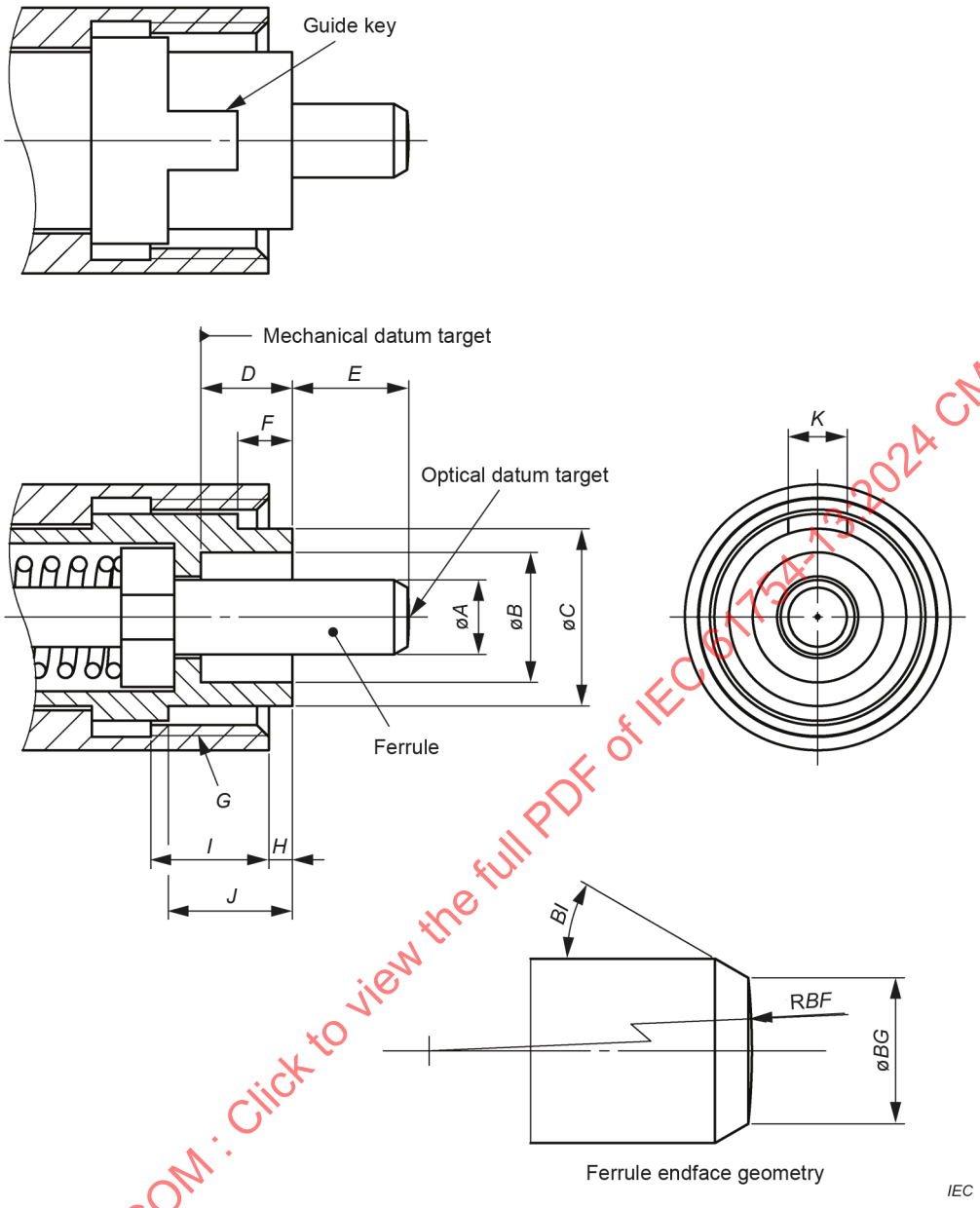

Figure 1 – Plug connector interface

Table 2 – Dimensions of the plug connector interface

Dimensions in millimetres

Reference	Dimensions		Remarks
	Minimum	Maximum	
A			Diameter, see Table 3, ferrule grade [a]
B	4,4	4,6	Diameter
C	5,8	6,0	Diameter
D	2,92	–	
E	3,75	4,10	[b]
F	1,77	2,77	
G	M8 × 0,75-6 H		[c]
H	–	1,1	[d]
I	3,5	–	
J	3,95	–	
K	1,86	2,14	
BF	See IEC 61755-3-1		Radius [e]
BG	See IEC 61755-3-1		Diameter [a]
BI(°)	25	35	Degree [a]

[a] The outside diameter of the ferrule may be less than 2,498 mm in the range of 1,8 mm from the tip rearwards.

[b] Dimension *E* is given for a plug endface when not mated. It is movable by a certain axial compression force, with direct contacting endfaces, and therefore dimension *E* is variable with a minimum length of 3,6 mm.

Ferrule compression force shall be 7,8 N to 11,8 N when dimension *E* is from 3,6 mm to 3,7 mm. Forces shall be validated for connectors with no fibre, primary coated fibre, or buffered fibre only.

[c] M8 × 0,75 indicates a metric screw thread with a nominal diameter of 8 mm and a pitch of 0,75 mm. 6H represents the class of fit. It requires a way of escape from the thread rearwards.

[d] The coupling sleeve shall be movable towards right and left directions. This dimension is given when the coupling sleeve is moved furthermost to the right.

[e] Dome eccentricity of the spherically polished endface shall be less than 0,05 mm.

Table 3 – Grade characteristics for plug connector

Dimensions in millimetres

Grade	Dimensions	
	A	
	Minimum	Maximum
A [a)]	Refer to IEC 61755-3-1	
B [a)]	Refer to IEC 61755-3-1	
C [a)]	Refer to IEC 61755-3-1	
D [a)]	Refer to IEC 61755-3-1	
A_m [a), b)]	Grade not specified at this time	
B_m [a), b)]	2,497	2,500
C_m [a), b)]	2,494	2,500

a) Add grade number to the interface reference number from 5.1.

b) See IEC 63267-2-1 for guidance.

Figure 2 is an example of an adaptor connector interface. Table 4 gives dimensions of the adaptor connector interface.

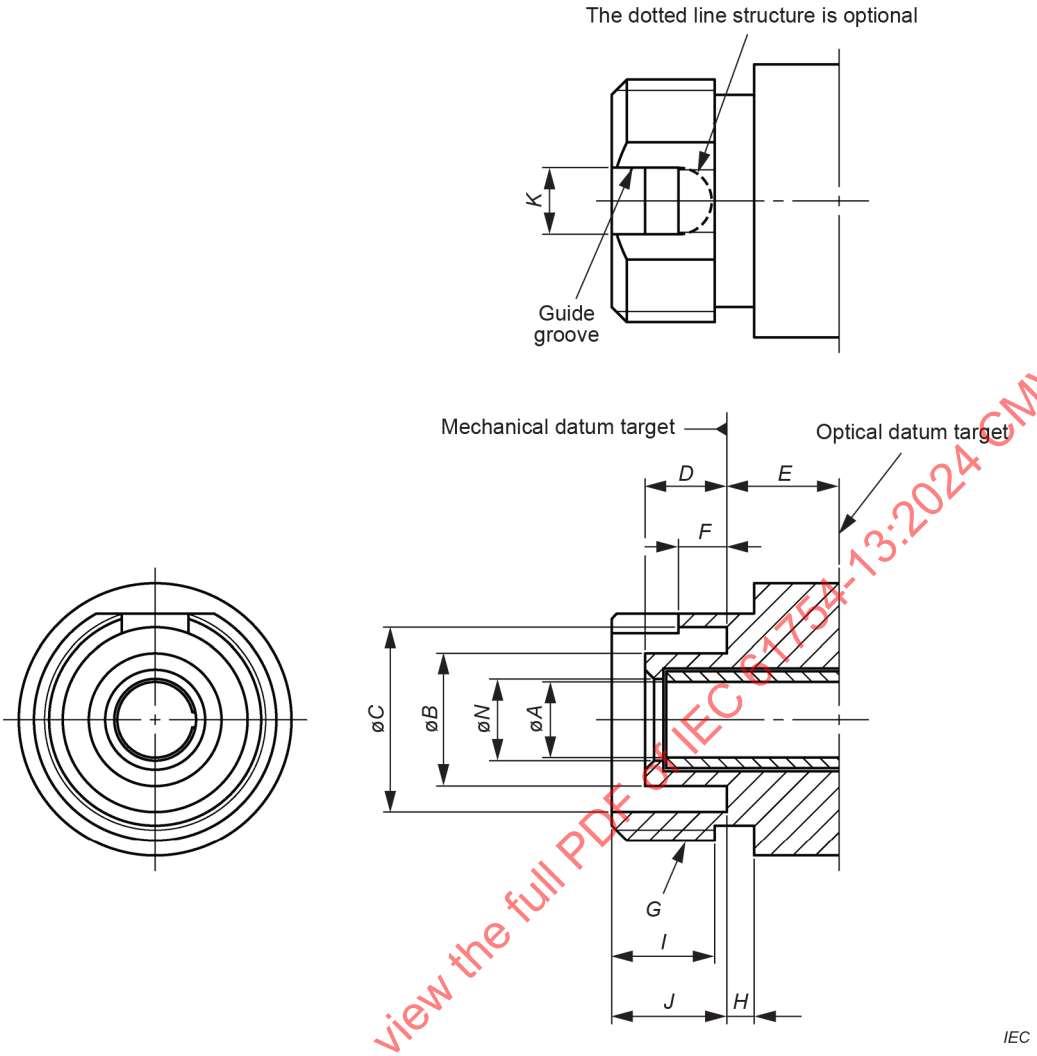

Figure 2 – Adaptor connector interface

Table 4 – Dimensions of the adaptor connector interface

Dimensions in millimetres

Reference	Dimensions		Remarks
	Minimum	Maximum	
A			Diameter, resilient alignment sleeve [a]
B	3,99	4,38	Diameter
C	6,01	6,20	Diameter
D	2,15	2,9	
E	3,6	3,7	
F	0,75	1,74	[c]
G	M8 × 0,75-6g		[b]
H	0,4	–	
I	2,8	–	
J	3,65	3,9	
K	2,15	2,6	[c]
N	2,55	2,70	[d]

[a] The connector alignment feature is a resilient alignment sleeve. The feature shall accept a pin gauge to the centre of the adaptor with a force of 2 N to 5,9 N with another pin gauge inserted into the feature from the other side until both pin gauges butt each other. The pin gauge shall be of type 2,499 (see Table 5). The centre of the adaptor is defined by the right side position of the dimension *E*.

[b] M8 × 0,75 indicates a metric screw thread with a nominal diameter of 8 mm and pitch of 0,75 mm. 6g represents the class of fit.

It requires a way of escape from the thread rearwards.

[c] The minimum rectangular envelope for the keyway is defined by dimensions *K* and *F*.

[d] This dimension shall be applied to an adaptor having a resilient alignment sleeve.

Figure 3 is an example of a pin gauge for adaptor. Table 5 gives pin gauge dimensions.

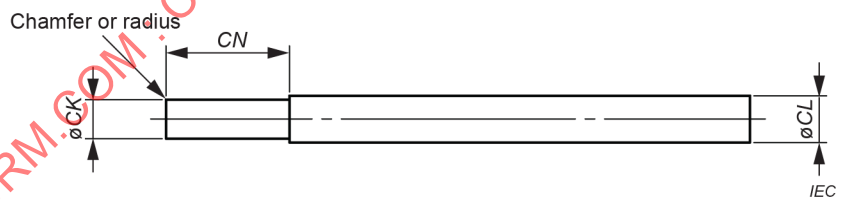

Figure 3 – Pin gauge for adaptor

Table 5 – Pin gauge dimensions

Dimensions in millimetres

Pin gauge grade [a]	*CK*		*CL*		*CN*		Remarks
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	
2,499	2,498 5	2,499 5	2,8	4,8	7	15	Resilient sleeve

[a] Surface roughness should be grade N4 (0,2 µm Ra) and cylindricity is less than 0,5 µm.

Figure 4 is an example of an active device receptacle interface. Table 6 gives dimensions of the active device receptacle interface.

Table 7 gives alignment feature grade of the active device receptacle interface.

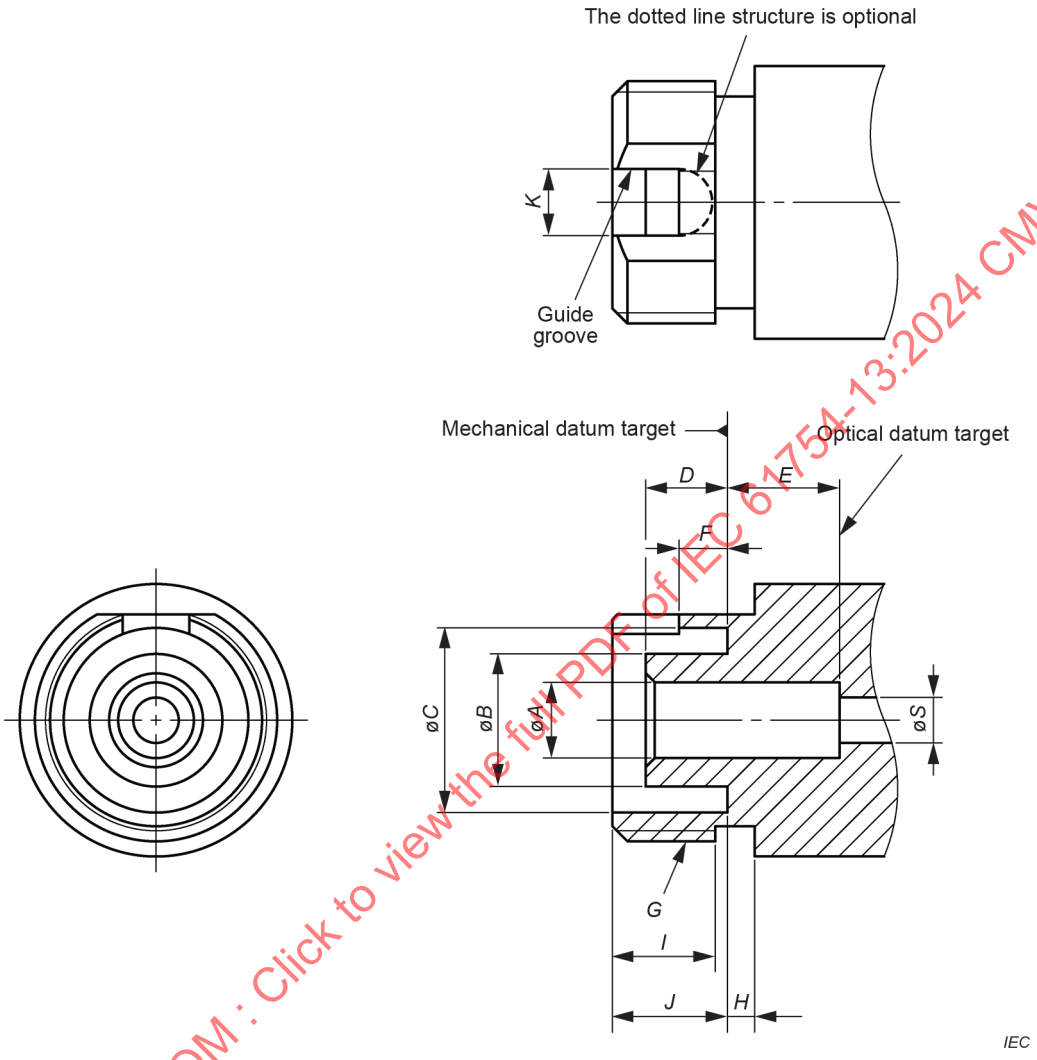

Figure 4 – Active device receptacle interface

Table 6 – Dimensions of the active device receptacle interface

Dimensions in millimetres

Reference	Dimensions		Remarks
	Minimum	Maximum	
A			Diameter, see Table 7 [a)]
B	3,99	4,38	Diameter
C	6,01	6,20	Diameter
D	2,15	2,9	
E	3,6	3,7	
F	0,75	1,74	
G	M8 × 0,75-6g		[b)]
H	0,4	–	
I	2,8		
J	3,65	3,9	
K	2,15	2,6	[c)]
S	0,5	2,5	Diameter

[a)] The connector alignment feature is a rigid bore sleeve or a resilient alignment sleeve. Dimension *A* defines the inner diameter of the alignment feature.

[b)] M8 × 0,75 indicates a metric screw thread with a nominal diameter of 8 mm and pitch of 0,75 mm. 6g represents the class of fit.

It requires a way of escape from the thread rearwards.

[c)] The minimum rectangular envelope for the keyway is defined by dimensions *K* and *F*.

Table 7 – Alignment feature grade of the active device receptacle interface

Dimensions in millimetres

Grade	*A*		Remarks
	Minimum	Maximum	
1	2,500	2,502	Rigid bore sleeve [a), c)]
2	2,501	2,504	
3	2,501	2,506	
4	2,501	2,525	
x			Resilient alignment sleeve [b), c)]

[a)] The connector alignment feature is a rigid bore sleeve. The dimension *A* shall be tested using two pin gauges. One pin gauge has the pin gauge grade number 1 µm larger than maximum value of the dimension *A*, the other pin gauge has the pin gauge grade number 1 µm smaller than the minimum value of the dimension *A*. The appropriate pin gauge shall be selected from the pin gauge grade table.

[b)] The connector alignment feature is an alignment sleeve. The feature shall accept a pin gauge to the centre of the adaptor with a force of 2 N to 5,9 N with another pin gauge inserted into the feature from the other side until both pin gauges butt each other. The pin gauge shall be the grade of 2,499 in Table 8.

[c)] Add grade number to the interface reference number from 5.1.

Figure 5 is an example of a pin gauge for active device receptacle. Table 8 gives pin gauge dimensions.

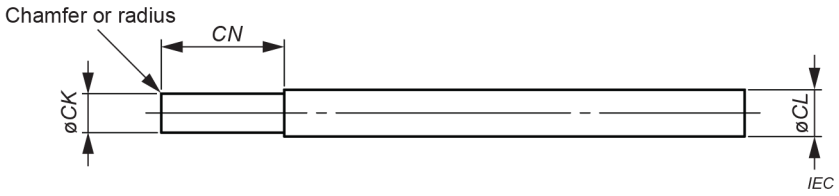

Figure 5 – Pin gauge for active device receptacle

Table 8 – Pin gauge dimensions

Dimensions in millimetres

Pin gauge grade [a]	*CK*		*CL*		*CN*		Remarks
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	
2,499	2,498 5	2,499 5	2,8	4,8	7	15	Resilient sleeve and rigid bore sleeve
2,500	2,499 5	2,500 5					
2,503	2,502 5	2,503 5					
2,505	2,504 5	2,505 5					Rigid bore sleeve
2,507	2,506 5	2,507 5					
2,526	2,525 5	2,526 5					

[a] Surface roughness should be grade N4 (0,2 µm radian) and the cylindricity is less than 0,5 µm.

Bibliography

IEC 61300-3-22, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-22: Examinations and measurements – Ferrule compression force*

IEC 63267-2-1, *Fibre optic interconnecting devices and passive components – Connector optical interfaces for enhanced macro bend multimode fibres – Part 2-1: Connection parameters of physically contacting 50 µm core diameter fibres – Non-angled*

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SOMMAIRE

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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DISPOSITIFS D'INTERCONNEXION ET COMPOSANTS PASSIFS FIBRONIQUES – INTERFACES DE CONNECTEURS FIBRONIQUES –

Partie 13: Famille de connecteurs de type FC-PC

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L'IEC 61754-13 a été établie par le sous-comité 86B: Dispositifs d'interconnexion et composants passifs à fibres optiques, du comité d'études 86 de l'IEC: Fibres optiques. Il s'agit d'une Norme internationale.

Cette troisième édition annule et remplace la deuxième édition parue en 2006. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

a) révision des références normatives reflétant les derniers documents;

b) ajout de la compatibilité d'accouplement en 5.2;

c) modifications des dimensions de l'interface d'une fiche de connecteur dans le Tableau 2 et le Tableau 3;

d) ajout des classes A_m, B_m et C_m dans le Tableau 3.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
86B/4874/FDIS	86B/4911/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Une liste de toutes les parties de la série IEC 61754, publiées sous le titre général *Dispositifs d'interconnexion et composants passifs fibroniques – Interfaces de connecteurs fibroniques*, peut être consultée sur le site web de l'IEC.

Le présent document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/publications.

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DISPOSITIFS D'INTERCONNEXION ET COMPOSANTS PASSIFS FIBRONIQUES – INTERFACES DE CONNECTEURS FIBRONIQUES –

Partie 13: Famille de connecteurs de type FC-PC

1 Domaine d'application

La présente partie de l'IEC 61754 définit les dimensions d'interfaces normalisées pour la famille de connecteurs de type FC-PC.

2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 61754-1, *Dispositifs d'interconnexion et composants passifs à fibres optiques – Interfaces de connecteurs à fibres optiques – Partie 1: Généralités et lignes directrices*

IEC 61755-3-1, *Interfaces optiques de connecteurs pour fibres optiques – Partie 3-1: Interfaces optiques, férules PC en zircone plein cylindrique de diamètre 2,5 mm et 1,25 mm, fibres unimodales*

3 Termes et définitions

Pour les besoins du présent document, les termes et définitions de l'IEC 61754-1 ainsi que les suivants s'appliquent.

L'ISO et l'IEC tiennent à jour des bases de données terminologiques destinées à être utilisées en normalisation, consultables aux adresses suivantes:

- IEC Electropedia: disponible à l'adresse https://www.electropedia.org/
- ISO Online browsing platform: disponible à l'adresse https://www.iso.org/obp

3.1
mécanisme de couplage à vis
mécanisme de couplage dans lequel une fiche de connecteur est insérée dans un connecteur intermédiaire ou une embase d'un dispositif actif, et dans lequel une vis femelle formée sur un écrou d'accouplement de la fiche de connecteur est serrée avec une vis mâle formée sur le connecteur intermédiaire de l'embase d'un dispositif actif

4 Description

Le connecteur générique de la famille de connecteurs de type FC est un jeu de fiches de connecteurs à position unique, de configuration fiche et raccord caractérisée par une férule d'un diamètre nominal de 2,5 mm. Il comprend un mécanisme de couplage à vis, comportant un ressort par rapport à la férule dans le sens de l'axe optique. Le couplage peut être relâché par le desserrage de la vis, et la fiche de connecteur peut être détachée de l'adaptateur optique ou du connecteur intermédiaire ou de l'embase d'un dispositif actif. La fiche a un détrompeur mâle unique qui peut être utilisé pour orienter et limiter la position relative entre le connecteur et le composant avec lequel il est accouplé. Le mécanisme d'alignement optique des connecteurs est de type manchon creux rigide ou manchon élastique.

5 Interfaces

5.1 Généralités

Les pages suivantes définissent les interfaces normalisées pour la famille de connecteurs de type FC. Le présent document contient les interfaces normalisées suivantes:

- interface IEC 61754-13-1: Interface d'une fiche de connecteur (voir Figure 1);
- interface IEC 61754-13-2: Interface de connecteurs intermédiaires (voir Figure 2 et Figure 3);
- interface IEC 61754-13-3: Interface d'embase d'un dispositif actif (voir Figure 4 et Figure 5).

La fiche de l'interface IEC 61754-13-1 comporte une férule dont l'extrémité est polie sphériquement, et permet d'obtenir un contact physique (PC, *physical contact*).

NOTE Le numéro de l'interface normalisée est un numéro permettant de distinguer les interfaces normalisées, pas le numéro de norme.

5.2 Compatibilité d'accouplement

Le Tableau 1 présente la compatibilité d'accouplement des interfaces.

Tableau 1 – Compatibilité d'accouplement des interfaces

Fiches	Raccords	Embases de dispositifs actifs
	IEC 61754-13-2	IEC 61754-13-3
IEC 61754-13-1	Accouplable	Accouplable

5.3 Interfaces et dimensions

La Figure 1 représente un exemple d'interface d'une fiche de connecteur. Le Tableau 2 donne les dimensions de l'interface d'une fiche de connecteur et le Tableau 3 indique les caractéristiques de classe de l'interface d'une fiche de connecteur.