BS EN 61754-30:2014

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Fibre optic interconnecting devices and passive components — Fibre optic connector interfaces

Part 30: Type CLIK connector series

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The UK participation in its preparation was entrusted by Technical Committee GEL/86, Fibre optics, to Subcommittee GEL/86/2, Fibre optic interconnecting devices and passive components.

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Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces - Part 30: Type CLIK connector series (IEC 61754-30:2014)

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Foreword

The text of document 86B/3705/FDIS, future edition 1 of IEC 61754-30, prepared by SC 86B "Fibre optic interconnecting devices and passive components" of IEC/TC 86 "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61754-30:2014.

The following dates are fixed:

– latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2014-12-13
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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60794-2-50	-	Optical fibre cables - Part 2-50: Indoor cables - Family specification for simplex and duplex cables for use in terminated cable assemblies	EN 60794-2-50	-
IEC 61754-1	-	Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces - Part 1: General and guidance	EN 61754-1	-
IEC 61755-3	series	Fibre optic connector optical interfaces - Part 3: Optical interface	EN 61755-3	series

CONTENTS

INTRODUCTION

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning a plug interface and an adaptor interface given in Clause 4.

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

Part 30: Type CLIK connector series

1 Scope

This part of IEC 61754 defines the standard interface dimensions for the type CLIK series 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 60794-2-50, *Optical fibre cables – Part 2-50: Indoor cables – Family specification for simplex and duplex cables for use in terminated cable assemblies*

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

IEC 61755-3 (all parts), *Fibre optic connector optical interfaces – Part 3: Optical interfaces*

3 Description

The parent connector for the type CLIK connector family is a single position plug connector set of plug/adaptor/plug configuration which is characterized by a 1,25 mm nominal diameter ferrule. The connector includes a ferrule spring loaded in the direction of the optical axis. The optical alignment mechanism of the connection is of a resilient sleeve style.

4 Interfaces

General requirements defined in IEC 61754-1 are valid for this standard.

The subsequent pages define the standard interfaces for the type CLIK connector series. The standard interfaces contained in this standard are listed in the following:

INTERFACE IEC 61754-30-1: Simplex plug connector interface – PC

INTERFACE IEC 61754-30-2: Simplex adaptor interface PC

INTERFACE IEC 61754-30-3: Simplex plug connector interface – APC 8°

INTERFACE IEC 61754-30-4: Simplex adaptor interface APC

The following plugs and adaptors shown in Table 1 and Table 2 are intermateable.

Table 1 – Intermateability between plugs and adaptors within the IEC 61754-30 series

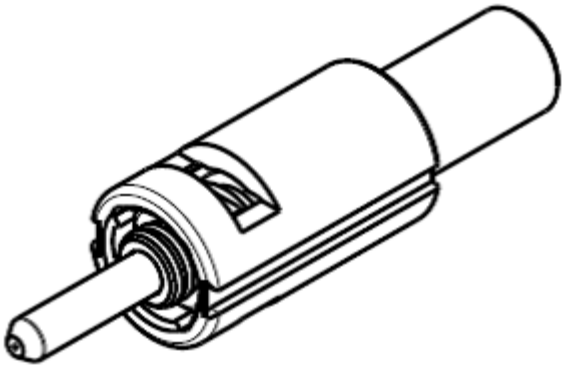
Plugs (polishing condition)	Adaptors interfaces	
	IEC 61754-30-2	IEC 61754-30-4
Interface IEC 61754-30-1	Mate	Not mate
Interface IEC 61754-30-3	Not mate	Mate

Table 2 – Intermateability between plugs within the IEC 61754-30 series

Plugs (polishing condition)	Plugs (polishing condition)	
	IEC 61754-30-1	IEC 61754-30-3
IEC 61754-30-1	Mate	Not mate
IEC 61754-30-3	Not mate	Mate

5 PC plug optical interface

PC plug optical interfaces are shown in Figure 1 to 4 and in Table 3.



IEC 0271/14

Figure 1 – PC plug interface (isometric view)

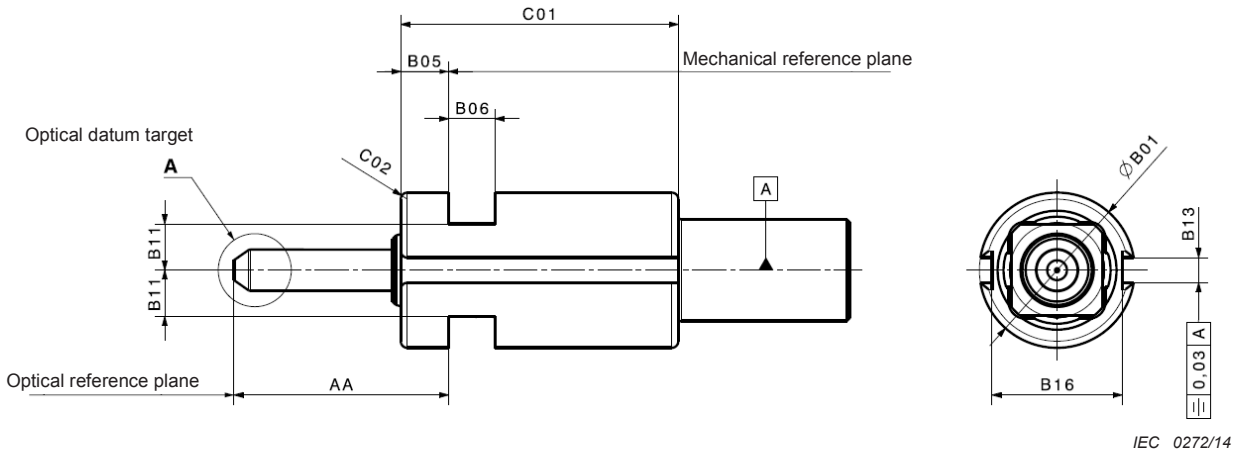
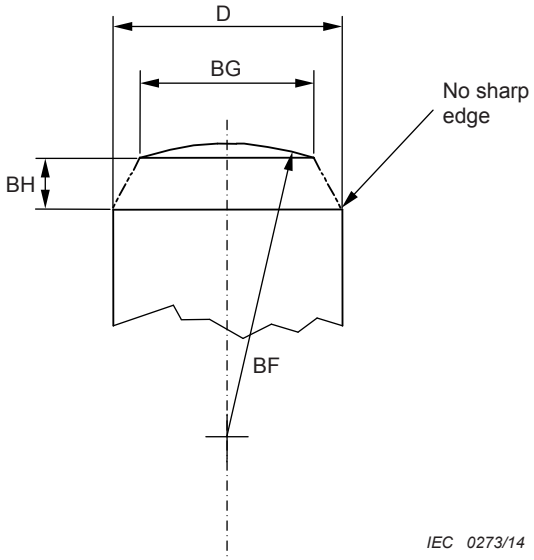


Figure 2 – PC plug interface reference planes

The plug of IEC 61754-30-1 has a ferrule with a spherically polished endface, and realizes physical contact (PC).



NOTE Expanded view drawings not-to-scale.

Figure 3 – Detail A of Figure 1 PC endface geometry

Refer to the IEC 61755-3 series for information on the endface geometry requirements of the PC interface.

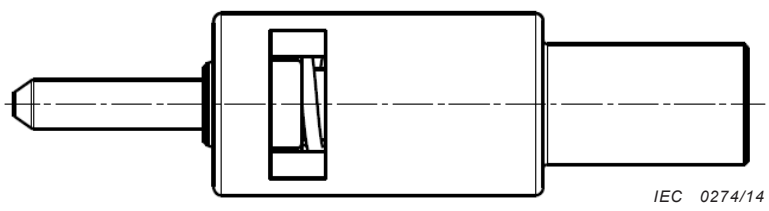


Figure 4 – Top view (PC)

Table 3 – PC plug dimensions

Reference	Dimensions mm			Remarks
	Minimum	Basic	Maximum	
AA[a]	6,45		6,55	
BF[b,c]	5		30	Radius
BG[b]	0,6		–	
BH[b]	–		1,0	
B01	4,675		4,725	
B05	1,425		1,475	
B06	1,3		1,5	
B11	1,375		1,425	
B13	0,745		0,775	
B16	3,925		3,955	
C01	8,3		8,5	
C02	0,15		0,25	Radius
D		See Table 5		

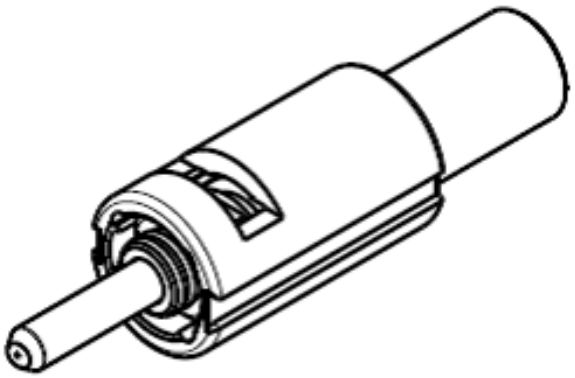
[a] Dimension AA is given for plug endface when not mated. It is given for a finished plug endface after all polishing. The ferrule is movable by a certain axial compressing force, with direct contacting endface, and therefore dimension AA is variable. The ferrule compression force shall be 5,0 N to 6,0 N when the optical datum target, dimension AA is moved to the range 6,0 mm to 6,35 mm. Forces are for buffered fibre only; different cord constructions can result in higher forces, see IEC 60794-2-50.

[b] These dimensional requirements apply to the finished ferrule, after all polishing procedures have been completed.

[c] Dimension BF is the radius of the polished ferrule end face.

6 APC plug optical interface

APC plug optical interfaces are shown in Figure 5 to 8 and Table 4.



IEC 0275/14

Figure 5 – APC plug interface (isometric view)

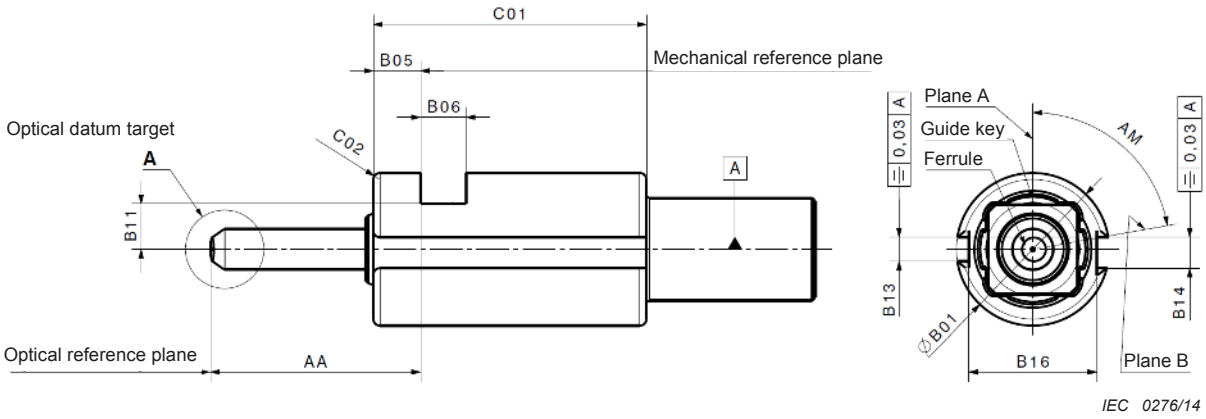
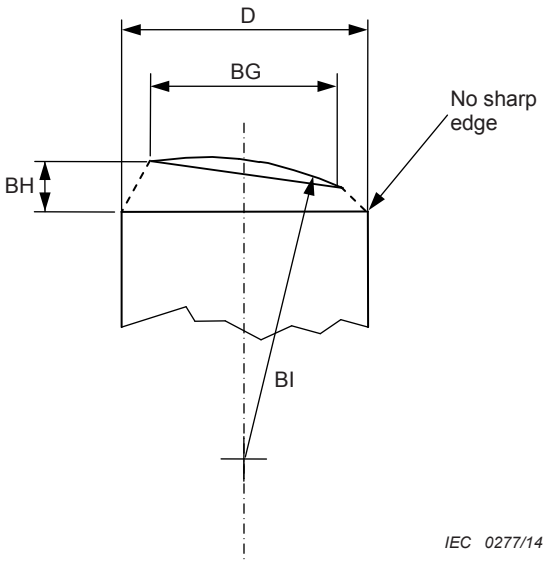


Figure 6 – APC plug interface reference planes

The plug of IEC 61754-30-3 has a ferrule with a spherically angled polished endface and realizes angled physical contact (APC).



NOTE Expanded view, drawings not-to-scale.

Figure 7 – Detail A of Figure 5 APC endface geometry

Refer to the IEC 61755-3 series for information on the endface geometry requirements of the APC interface.

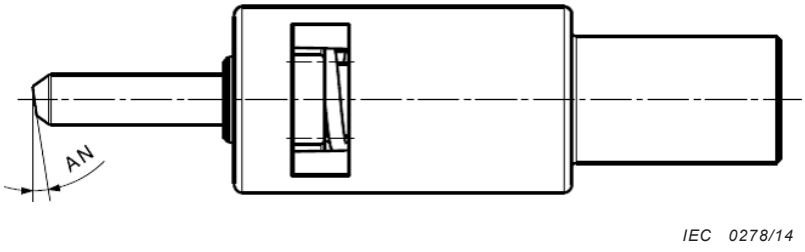


Figure 8 – Top view (APC)

Table 4 – APC plug dimensions

Reference	Dimensions mm			Remarks
	Minimum	Basic	Maximum	
AA[a]	6,45		6,55	See [a]
AM[b]		90		Basic dimension, degrees
AN		8		Basic dimension, degrees
B01	4,675		4,725	Diameter
BI[c,d]	5		12	Radius
BG[c]	0,6		–	
BH[c]	–		1,0	
B05	1,425		1,475	
B06	1,3		1,5	
B11	1,375		1,425	
B13	0,725		0,755	
B14	0,935		0,965	
B16	3,925		3,955	
C01	8,3		8,5	
C02	0,15		0,25	Radius
D		See Table 5		

[a] Dimension AA is given for plug endface when not mated. It is given for a finished plug endface after all polishing. The ferrule is movable by a certain axial compressing force, with direct contacting endface, and therefore dimension AA is variable. Ferrule compression force shall be 5,0 N to 6,0 N when the optical datum target, dimension AA is moved to the range 6,0 mm to 6,35 mm. Forces are for buffered fibre only, different cord constructions can result in higher forces, see IEC 60794-2-50.

[b] Dimension AM is defined as an angle between two planes: One plane, plane A, passes through the axis of the ferrule and the axis of symmetry of the key of the angled endface connector plug. The other plane, plane B, passes through the axis of the ferrule and the plane normal to the angled PC reference plane.

[c] These dimensional requirements apply to the finished ferrule after all polishing procedures have been completed.

[d] Dimension BI is the radius of the polished ferrule end face.

Table 5 shows ferrule grades.

Table 5 – Plug connector interface – Ferrule grade

Grade	Diameter mm		Remarks [a]
	Minimum	Maximum	
1	1,2485	1,2495	
2	1,2483	1,2495	
3	1,2467	1,2495	

[a] The ferrule material is zirconia ceramic. Alternative materials may be used for the ferrule, that have directly compatible material properties with zirconia but the endface performance requirements shall be met under all conditions.

7 PC adaptor optical interface

PC adaptor optical interfaces are shown in Figure 9 and 10 and in Table 6

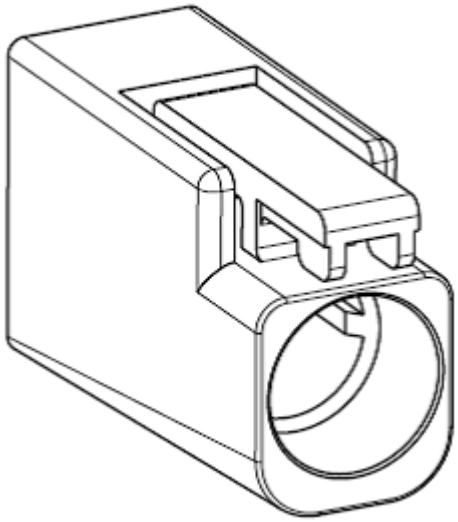


Figure 9 – PC adaptor interface (isometric view)

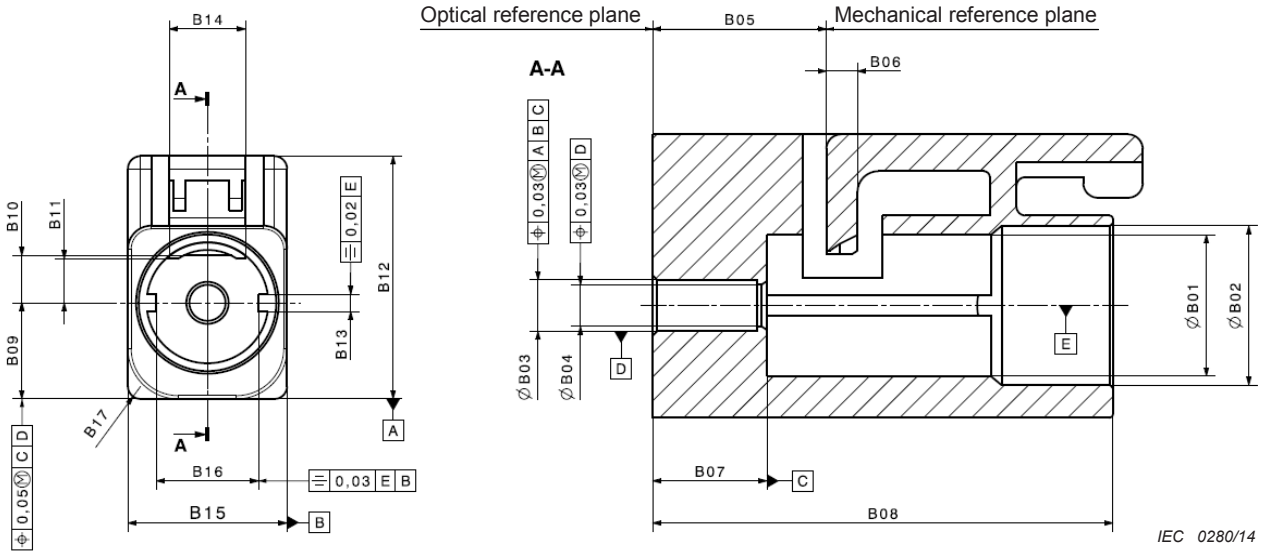


Figure 10 – PC adaptor interface

Table 6 – Dimensions of the PC adaptor interface

Reference	Dimensions mm			Remarks [a]
	Minimum	Basic	Maximum	
B01	4,755		4,805	Diameter
B02	5,375		5,425	Diameter
B03	1,715		1,785	Diameter
B04	1,39		1,45	Diameter
B05	5,825		5,875	
B06	1		1,1	
B07	3,83		3,87	
B08	15,45		15,55	
B09	3,75		3,85	
B10	1,845		1,895	
B11	1,715		1,765	
B12	9,55		9,65	
B13	0,67		0,7	
B14	2,95		3,05	
B15	6,2		6,3	
B16	4,005		4,035	
B17	0,45		0,55	Radius

[a] The connector alignment feature is a resilient (split) alignment sleeve. The feature shall accept a pin gauge to the centre of the adaptor with a force of 1,0 N to 2,5 N on condition that another pin gauge is inserted into the feature from the other side until both pin gauges butt against each other. The pin gauge shall be 1,249 0 mm. The centre of the adaptor is defined by the left side position of dimension B07.

8 APC adaptor optical interface

APC adaptor optical interfaces are shown in Figure 11, Figure 12 and Table 7.

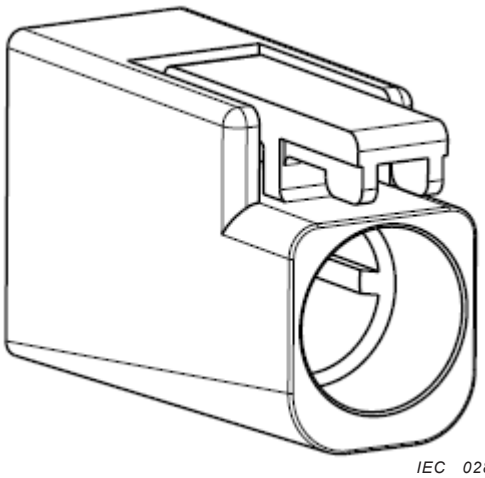


Figure 11 – APC adaptor interface (isometric view)

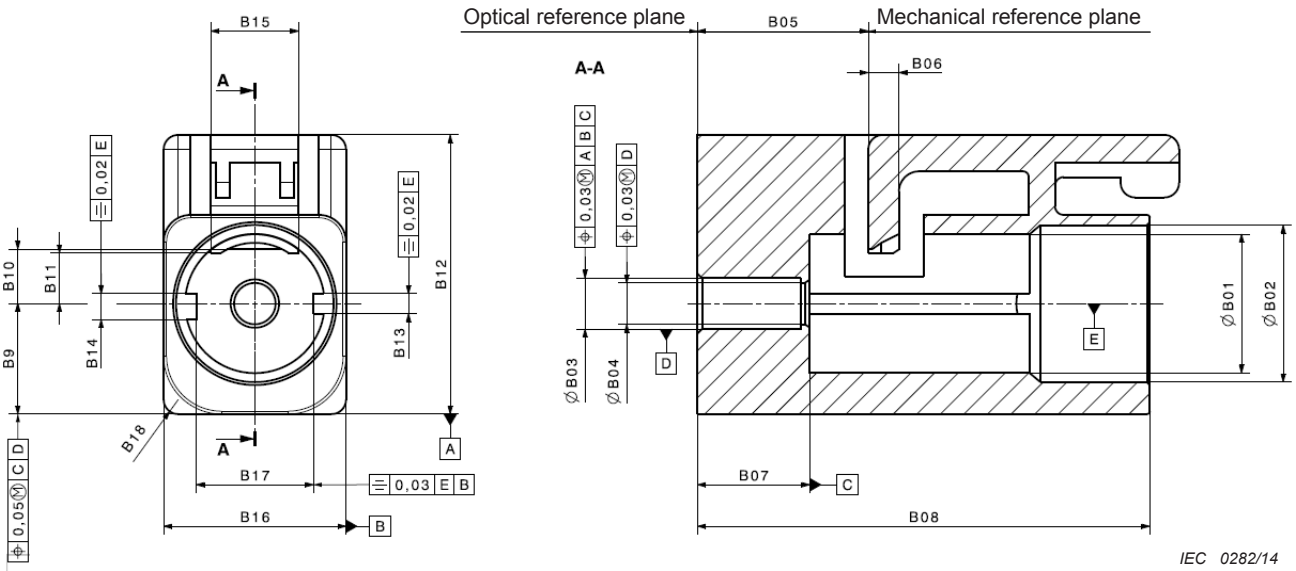


Figure 12 – APC adaptor interface

Table 7 – Dimensions of the APC adaptor interface

Reference	Dimensions mm			Remarks [a]
	Minimum	Basic	Maximum	
B01	4,755		4,805	Diameter
B02	5,375		5,425	Diameter
B03	1,715		1,785	Diameter
B04	1,39		1,45	Diameter
B05	5,825		5,875	
B06	1		1,1	
B07	3,83		3,87	
B08	15,45		15,55	
B09	3,75		3,85	
B10	1,845		1,895	
B11	1,715		1,765	
B12	9,55		9,65	
B13	0,67		0,7	
B14	0,88		0,91	
B15	2,95		3,05	
B16	6,2		6,3	
B17	4,005		4,035	
B18	0,45		0,55	Radius

[a] The connector alignment feature is a resilient (split) alignment sleeve. The feature shall accept a pin gauge to the centre of the adaptor with a force of 1,0 N to 2,5 N under the condition that another pin gauge is inserted into the feature from the other side until both pin gauges butt against each other. The pin gauge shall be 1,249 0 mm. The centre of the adaptor is defined by the left side position of dimension B07.

9 Pin gauge for adaptor

Figure 13 shows the pin gauge for the adaptor. Table 8 shows the pin gauge dimensions.

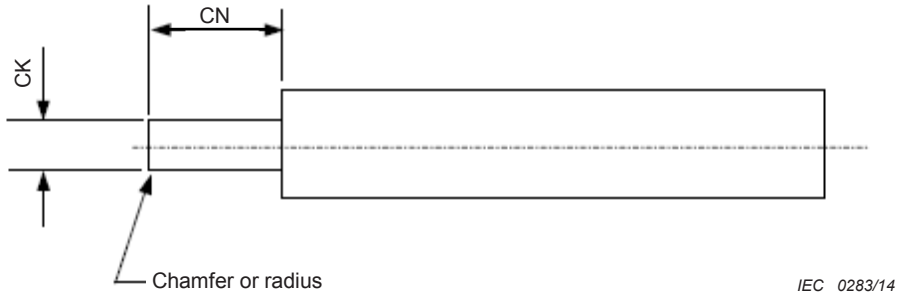


Figure 13 – Pin gauge for adaptor

Table 8 – Pin gauge dimensions

Pin gauge grade	CK diameter mm		CN mm		Remarks
	Minimum	Maximum	Minimum	Maximum	
1,249	1,248 8	1,249 2	4,2	15	[a]
[a] Surface roughness along CN should be <0,2 µm Ra; cylindricity is less than 0,5 µm.					

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