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CONSOLIDATED VERSION

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

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

FOREWORD

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 61754-4 edition 3.1 contains the third edition (2022-02) [documents 86B/4563/FDIS and 86B/4584/RVD] and its amendment 1 (2026-06) [documents 86B/5124/CDV and 86B/5189/RVC].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

IEC 61754-4 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 2013 and constitutes a technical revision.

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

a) the test method IEC 61300-3-22 for the compression force of the ferrule was added;
b) Annex A (informative) with cut out dimension requirements for testing the strength of mounted adaptors was added.

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

Draft	Report on voting
86B/4563/FDIS	86B/4584/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.

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/standardsdev/publications.

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 document and its amendment 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.

1 Scope

This part of IEC 61754 specifies the standard interface dimensions for type SC 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 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 61754-1, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 1: General and guidance*

IEC 61755-3 (all parts), *Fibre optic interconnecting devices and passive components - Connector optical interfaces: Connector parameters of dispersion unshifted single-mode physically contacting fibres*

IEC 63267-3 (all parts), *Fibre optic interconnecting devices and passive components - Connector optical interfaces for enhanced macro bend multimode fibres: Connector parameters of physically contacting 50 µm core diameter fibres*

3 Terms and definitions

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

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

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

4 Description

The parent connector for the type SC connector family is a single position plug connector 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 sleeve style.

This document 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.

5 Interfaces

This document contains the standard interfaces showed in Table 1.

Table 1 – Interfaces

Interface IEC 61754-4-1	Simplex plug connector interface – push/pull, physical contact (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, angled PC (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

Table 2 shows the intermateability of interfaces.

Table 2 – Intermateability of interfaces

Plugs	**Adaptors/active device receptacles**					
	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
61754-4-6	Not mate	Mate	Not mate	Not mate	Mate	Not mate

Figure 1 is an example of a simplex PC plug connector interface. Table 3 gives dimensions of the simplex PC plug connector interface and Table 4 gives the grade characteristics for simplex PC plug connector interface.

A chamfer or radius is allowed to a maximum depth of 1,8 mm from the ferrule endface.

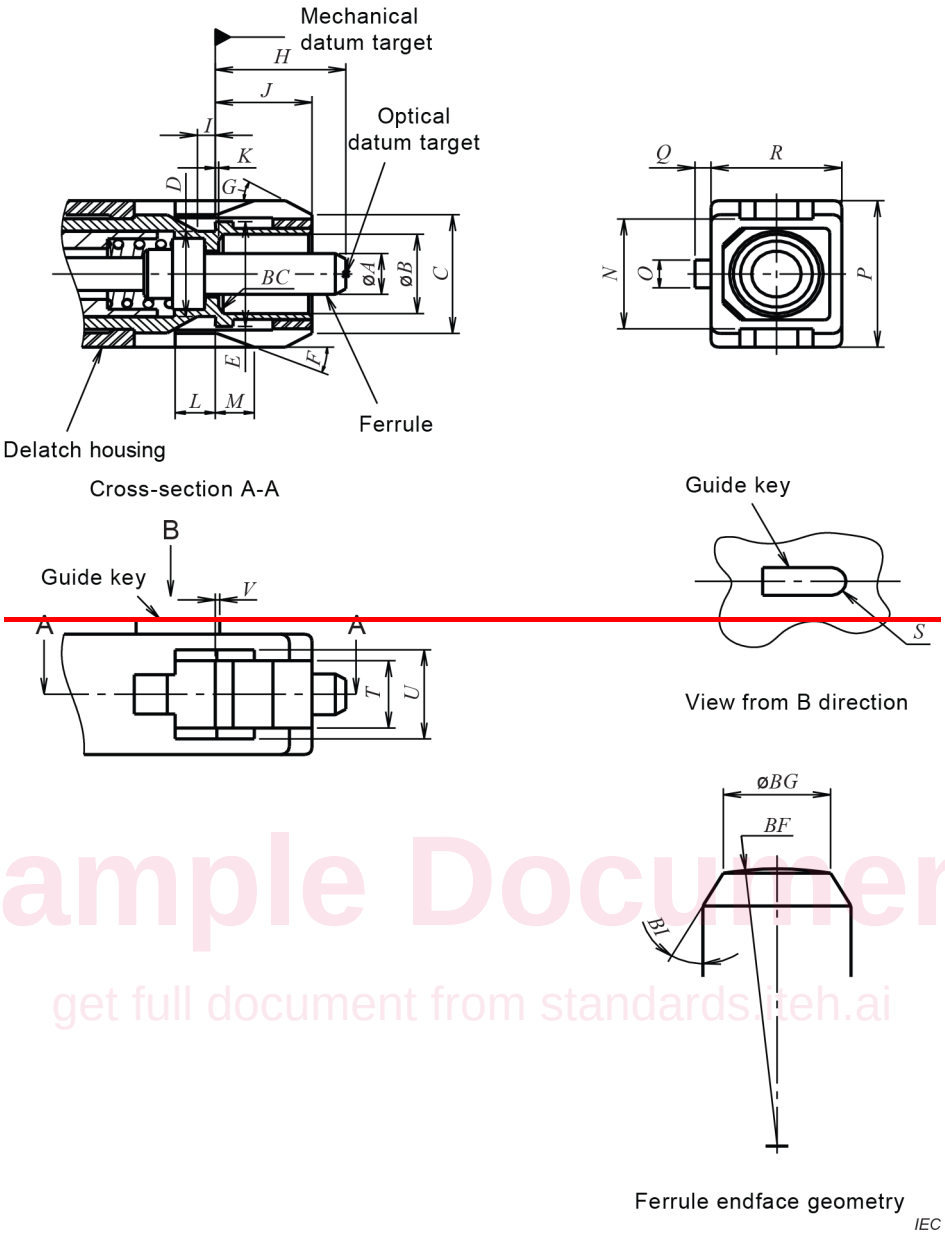

Figure 1 – Simplex PC plug connector interface

Table 3 – Dimensions of the simplex PC plug connector interface

Reference	Dimensions		Remarks
	Minimum	Maximum	
A	See Table 4		
B	4,8 mm	4,9 mm	
C	6,8 mm	7,4 mm	
D	4,9 mm	5,3 mm	
E	6,7 mm	6,8 mm	
F	19°	23°	Angle, unit in degrees
G	25°	35°	Angle, unit in degrees
H	7,15 mm	7,5 mm	[a]
I	0,8 mm	1,2 mm	
J	5,3 mm	5,5 mm	
K	–	0,05 mm	
L	2,11 mm	–	[b]
M	2,0 mm	2,8 mm	[b] [c]
N	6,6 mm	6,8 mm	
O	1,6 mm	1,8 mm	
P	8,89 mm	8,99 mm	
Q	0,8 mm	1,0 mm	
R	7,29 mm	7,39 mm	
S	0,8 mm	0,90 mm	Radius
T	4,05 mm	4,15 mm	
U	5,4 mm	5,6 mm	
V	0 mm	0,5 mm	[b]
BC	0 mm	0,5 mm	Chamfer or round
BF	~~See IEC 61755-3-1~~ Shall be as specified in the IEC 61755-3 series or IEC 63267-3 series		Radius [d]
BG	~~See IEC 61755-3-1~~ Shall be as specified in the IEC 61755-3 series or IEC 63267-3 series		Diameter
~~*BI*~~ *BH*	~~25°~~	~~35°~~	~~Angle, unit in degrees~~
	Shall be as specified in the IEC 61755-3 series or IEC 63267-3 series		

[a] Dimension *H* is given for plug endface when not mated. The ferrule 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 dimension *H* is 7,0 mm ± 0,1 mm. The compression force shall be measured according to IEC 61300-3-22.

[b] The delatch housing shall be movable to the right or left. Dimensions *L*, *M* and *V* are given when the delatch housing is at the furthest right. Dimension *M* shall be negative, when the delatch housing is at the furthest left.

[c] The right end of *M* shall be at the left of the mechanical datum target when the delatch housing is at the furthest left.

~~[d] Dome eccentricity of the spherical polished endface shall be less than 50 µm.~~

Table 4 – Grade characteristics for simplex PC plug connector

Grade	Dimensions mm		Remarks
	A		
	Minimum	Maximum	
A	~~See IEC 61755-3-1~~ Grade not specified at this time		a
B	~~See IEC 61755-3-1~~ Shall be as specified in the IEC 61755-3 series		a
C	~~See IEC 61755-3-1~~ Shall be as specified in the IEC 61755-3 series		a
D	~~See IEC 61755-3-1~~ Shall be as specified in the IEC 61755-3 series		a
A_m	Grade not specified at this time		a b
B_m	~~2,497~~	~~2,500~~	a b
	Shall be as specified in the IEC 63267-3 series		
C_m	~~2,494~~	~~2,500~~	a b
	Shall be as specified in the IEC 63267-3 series		

[a] Add the grade number to the interface reference number.

~~[b] Refer to future IEC 61755-6-1 for guidance [1].~~

Figure 2 is an example of a simplex adaptor connector interface. Table 5 gives dimensions of the simplex adaptor connector interface and Table 6 gives the grade of the simplex adaptor connector interface.

~~[1] Under preparation. Stage at the time of publication: IEC/CDM 61755-6-1:2021.~~

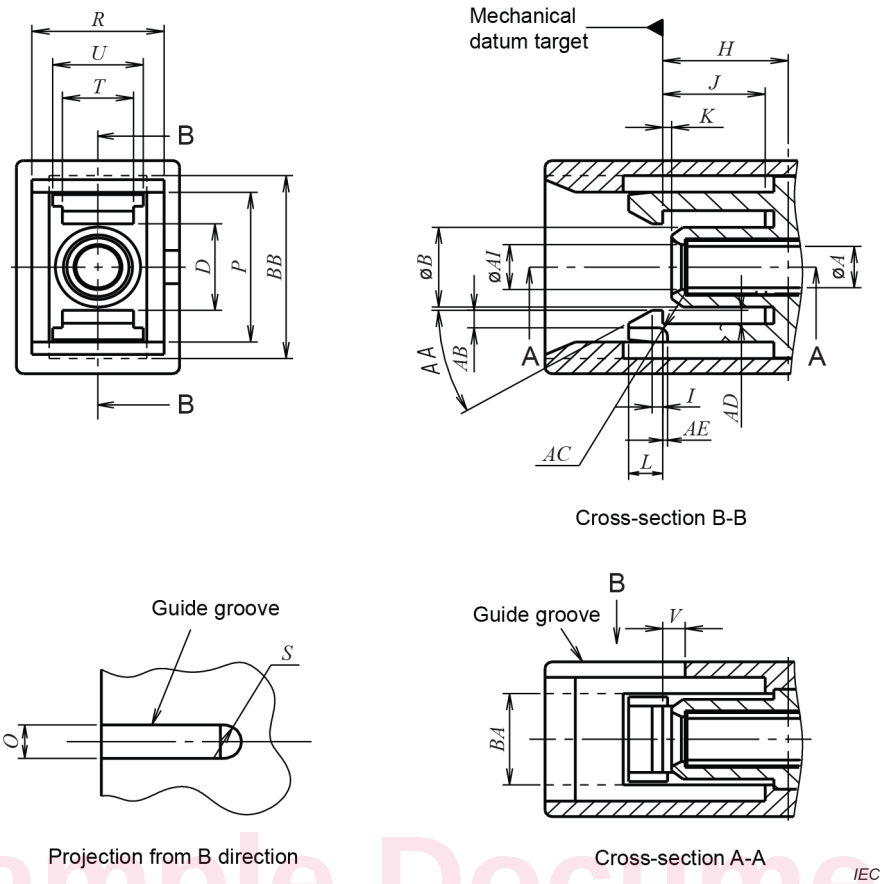

Figure 2 – Simplex adaptor connector interface

Table 5 – Dimensions of the simplex adaptor connector interface

Reference	Dimensions		Remarks
	Minimum	Maximum	
A	See Table 6		
B	4,39 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, unit in degrees
AB	0,8 mm	1,0 mm	
AC	0,4 mm	0,6 mm	Radius

Reference	Dimensions		Remarks
	Minimum	Maximum	
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] The dotted line structure in Figure 2 is a groove-shape preventing interference when the latch is deformed. It is optional.

Table 6 – Grade characteristics for simplex adaptor connector

Grade	Dimensions mm		Remarks
	A		
	Minimum	Maximum	
[a]			Resilient sleeve [a] [b]

[a] Add the grade number to the interface reference number.

[b] The connector alignment feature is a resilient sleeve. The feature shall accept a pin gauge 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 pin gauge is inserted into the feature from the other side. The centre of the adaptor is defined by the right side position of dimension *H*.

Figure 3 is an example of a pin gauge for adaptor. Table 7 gives pin gauge dimensions.

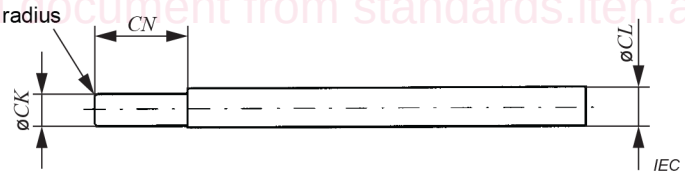

Figure 3 – Pin gauge for adaptor

Table 7 – Pin gauge dimensions

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
CK	2,498 5	2,499 5	Surface roughness: ~~grade N4 (0,2 µm radius)~~ Ra: ≤ 0,000 2
CL	2,8	4,8	
CN	7		

Figure 4 is an example of a duplex PC plug connector interface. Table 8 gives dimensions of the duplex PC plug connector interface and Table 9 gives the grade of the duplex PC plug connector interface.

A chamfer or radius is allowed to a maximum depth of 1,8 mm from the ferrule endface.

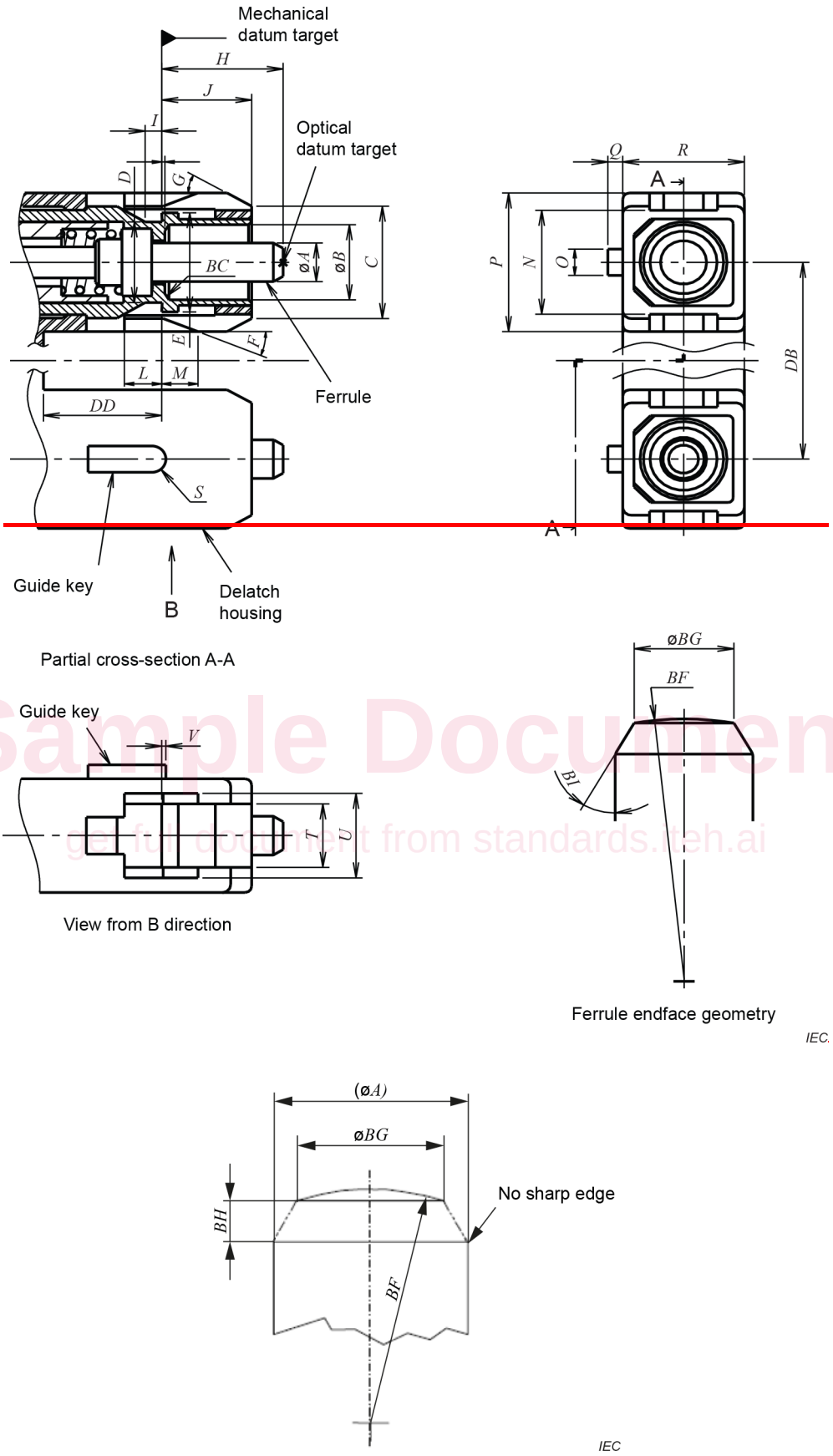

Figure 4 – Duplex PC plug connector interface

Table 8 – Dimensions of the duplex PC plug connector interface

Reference	Dimensions		Remarks
	Minimum	Maximum	
A	See Table 9		
B	4,8 mm	4,9 mm	
C	6,8 mm	7,4 mm	
D	4,9 mm	5,3 mm	
E	6,7 mm	6,8 mm	
F	19°	23°	Angle, unit in degrees
G	25°	35°	Angle, unit in degrees
H	7,15 mm	7,5 mm	[a]
I	0,8 mm	1,2 mm	
J	5,3 mm	5,5 mm	
K	–	0,05 mm	
L	2,11 mm	–	[b]
M	2,0 mm	2,8 mm	[b] [c]
N	6,6 mm	6,8 mm	
O	1,6 mm	1,8 mm	
P	8,79 mm	8,89 mm	[d]
Q	0,8 mm	1,0 mm	
R	7,29 mm	7,39 mm	
S	0,8 mm	0,9 mm	Radius
T	4,05 mm	4,15 mm	
U	5,4 mm	5,6 mm	
V	0 mm	0,5 mm	[b]
BC	0 mm	0,5 mm	Chamfer or round
BF	~~See IEC 61755-3-1~~ Shall be as specified in the IEC 61755-3 series or IEC 63267-3 series		Radius [f]
BG	~~See IEC 61755-3-1~~ Shall be as specified in the IEC 61755-3 series or IEC 63267-3 series		Diameter
~~*BI*~~ *BH*	~~25°~~	~~35°~~	~~Angle, unit in degrees~~
	Shall be as specified in the IEC 61755-3 series or IEC 63267-3 series		
DB	12,65 mm	12,75 mm	[e]
DD	7 mm	~~35 mm~~	