

INTERNATIONAL STANDARD

**Fibre optic interconnecting devices and passive components – Fibre optic
connector interfaces –
Part 15: Type LSH connector family**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING
DEVICES AND PASSIVE COMPONENTS –
FIBRE OPTIC CONNECTOR INTERFACES –**
Part 15: Type LSH connector family

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International Standard IEC 61754-15 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 1999. The main changes with regard to the previous edition are to reconsider the figures and the dimensions of the interface.

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

FDIS	Report on voting
86B/2835/FDIS	86B/2876/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.

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

A list of all the parts in 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 maintenance result 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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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

Part 15: Type LSH connector family

1 Scope

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

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.

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

ISO 8015, *Technical drawings – Fundamental tolerancing principle*

3 Description

The parent connector for the type LSH connector family is a single-position plug connector which is characterized by a 2,5 mm nominal ferrule diameter. It includes a push-click-pull coupling mechanism, which is spring-loaded relative to the ferrule in the direction of the optical axis. The optical alignment mechanism of the connectors is a rigid bore sleeve or a resilient sleeve style.

4 Interfaces

The pages that follow define the standard interfaces for the type LSH connector family.

This standard contains the following standard interfaces:

- Interface 61754-15-1 Simplex plug connector PC-interface
- Interface 61754-15-2 Simplex adaptor interface
- Interface 61754-15-3 Duplex plug connector PC-interface
- Interface 61754-15-4 Duplex adaptor interface
- Interface 61754-15-5 Simplex plug connector interface – APC 8°
- Interface 61754-15-6 Duplex plug connector interface – APC 8°
- Interface 61754-15-7 Active device interface

The following standards are intermateable.

Table 1 – Intermateability between plugs, adaptors and active device

Plugs	Adaptors		Active device
	61754-15-2	61754-15-4	61754-15-7
61754-15-1	Mate	Mate	Mate
61754-15-3	Not mate	Mate	Not mate
61754-15-5	Mate	Mate	Mate
61754-15-6	Not mate	Mate	Not mate

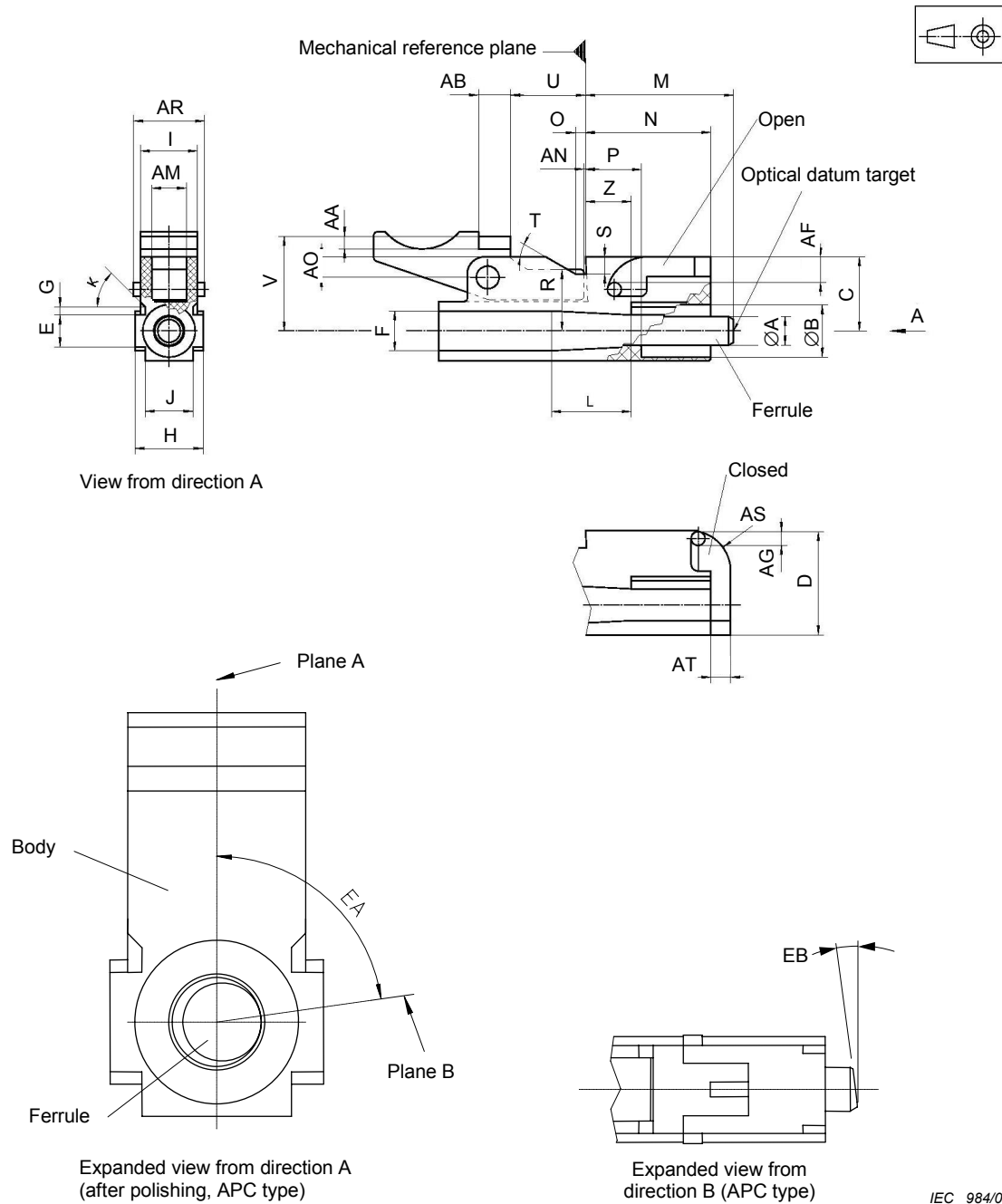


Figure 1 – Simplex plug interface

IEC 984/09

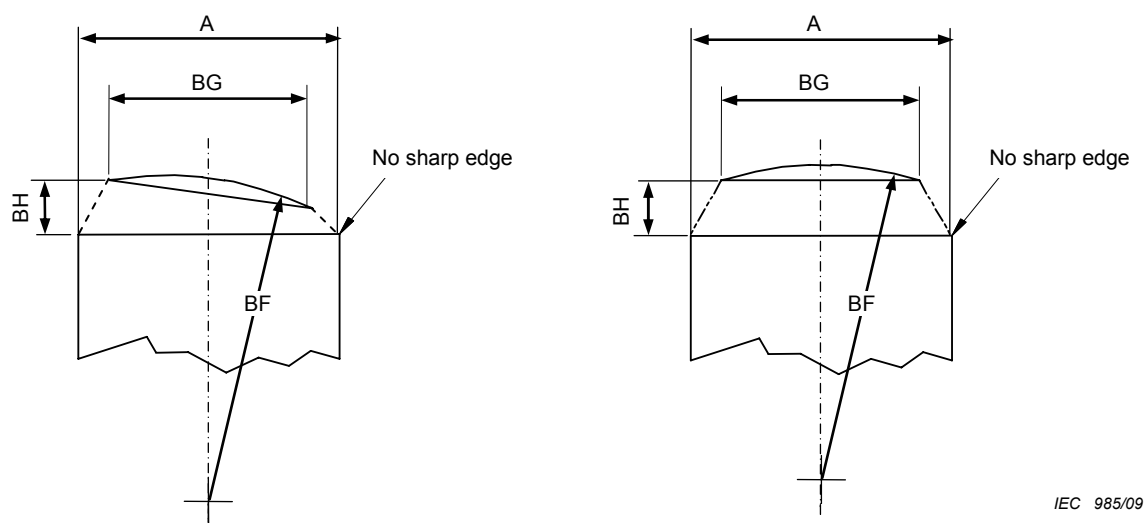


Figure 2 – APC/PC endface geometry

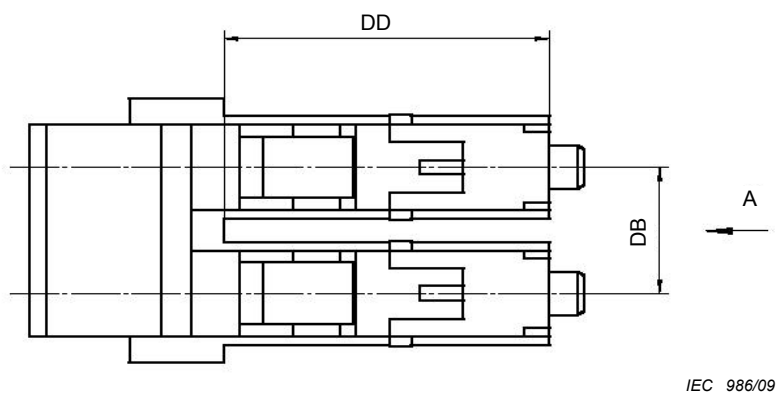


Figure 3 – Duplex plug interface

Table 2 – Dimensions of plug connector interface

Reference	Dimensions			Notes
	Minimum	Basic	Maximum	
A	–		–	1, See Table 3
B	4,45 mm		4,55 mm	Diameter
C	6,25 mm		6,29 mm	
D	8,82 mm		8,9 mm	
E	2,75 mm		2,79 mm	
F	2,95 mm		2,99 mm	
G	0,67 mm		1 mm	
H	5,95 mm		5,98 mm	
I	4,93 mm		4,98 mm	
J	4,13 mm		4,18 mm	
K	45°		60°	Angle in degrees
L	6,1 mm		6,5 mm	
M	12,05 mm		–	2
N	10,9 mm		11,1 mm	
O	0,9 mm		1,5 mm	
P	4,5 mm		5,1 mm	
R	1,2 mm		1,5 mm	
S	1,25 mm		1,35 mm	
T	25°		36°	Angle in degrees
U	6,8 mm		7,2 mm	
V	8,2 mm		8,4 mm	
Z	3,9 mm		4,1 mm	
AA	0,95 mm		–	3
AB	2,5 mm		2,8 mm	3
AF	2,2 mm		2,3 mm	
AG	1,15 mm		1,2 mm	
AM	3 mm		3,2 mm	
AN	0,1 mm		0,3 mm	
AO	1,5 mm		2 mm	
AR	–		6,2 mm	
AS	2,8 mm		3,5 mm	
AT	1,65 mm		1,8 mm	
BF	5 mm		–	Radius, 4
BG	0,8 mm		–	Pedestal diameter
BH	–		1,8 mm	
EA	–	90°	–	Angle in degrees, 5 and 6
EB	–	8°	–	Angle in degrees, 6
DB	7,35 mm		7,45 mm	Float
DD	18,2 mm		19 mm	

Table 2 (continued)

- NOTE 1 A chamfer or radius is allowed to a maximum depth of 1 mm from the ferrule endface.
- NOTE 2 Dimension M is given for plug endface when not mated. It is movable by a certain axial compression force, with direct contacting endfaces, and therefore dimension M is variable. Ferrule compression force should be 7,8 N to 11,8 N when the dimension M is 11,9 mm to 12 mm.
- NOTE 3 AA and AB correspond to a mechanical codification.
- NOTE 4 See the IEC 61755-3 series.
- NOTE 5 Dimension EA 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 body of the angled endface connector plug. The other plane, plane B, passes through the axis of the ferrule and the normal to the tangent plane at the axis of the ferrule endface.
- NOTE 6 Only for APC version.

Table 3 – Ferrule grade table for plug connector interface

Grade	A	
	Minimum	Maximum
0	2,499 0 mm	2,499 5 mm
1	2,498 5 mm	2,499 5 mm
2	2,498 3 mm	2,499 5 mm

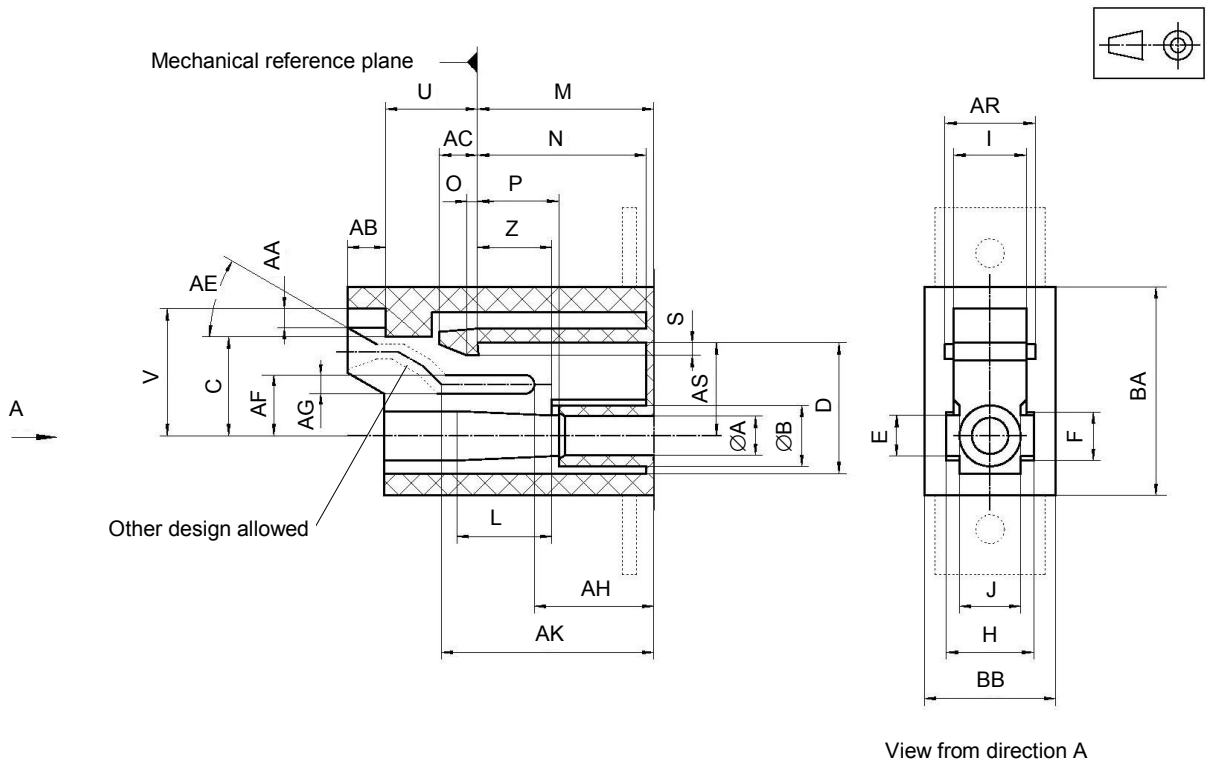
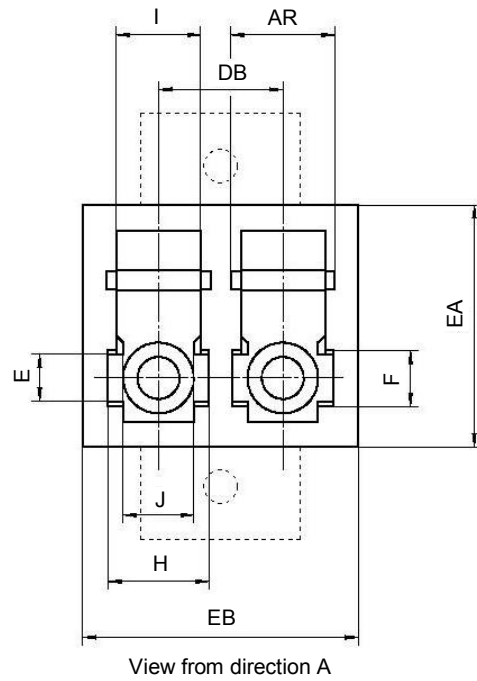


Figure 4a – Simplex adaptor interface with optional adaptor flanges



IEC 988/09

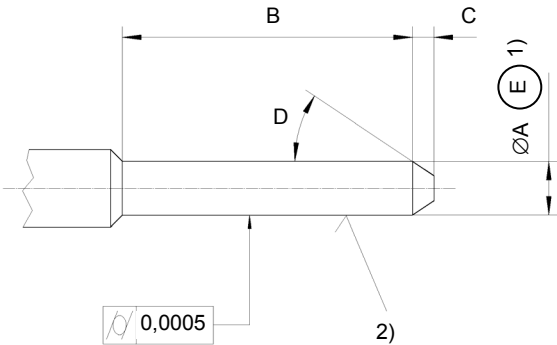
Figure 4b – Duplex adaptor interface with optional adaptor flanges

Figure 4 – Different types of adaptor interface with optional adaptor flanges

Table 4 – Dimensions of the simplex and duplex adaptor interface

Reference	Dimensions			Notes
	Minimum	Basic	Maximum	
A	–		–	See note
B	4,2 mm		4,4 mm	Diameter
C	6,31 mm		–	
D	8,93 mm		8,97 mm	
E	2,81 mm		2,85 mm	
F	3,02 mm		3,05 mm	
H	6 mm		6,05 mm	
I	5 mm		5,05 mm	
J	4,2 mm		4,25 mm	
L	–		6,5 mm	
M	11,9 mm		12 mm	
N	11,15 mm		11,5 mm	
O	0,75 mm		0,85 mm	
P	5,1 mm		–	
S	–		1,2 mm	
U	6,5 mm		6,7 mm	
V	8,45 mm		8,65 mm	
Z	4,8 mm		5,2 mm	
AA	–		0,9 mm	
AB	2,4 mm		2,6 mm	
AC	–		2,9 mm	
AE	30°		40°	Angle in degrees
AF	4,11 mm		4,20 mm	
AG	1,25 mm		–	
AH	–		8,65 mm	
AK	14,8 mm		–	
AR	6,3 mm		–	
AS	6,31 mm		6,35 mm	
BA	–		13,05 mm	
BB	–		9 mm	
DB	7,35 mm		7,45 mm	
EA	–		13,05 mm	
EB	–		14,75 mm	

NOTE The connector alignment feature is a resilient sleeve. The feature should accept a gauge pin 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 M.



IEC 989/09

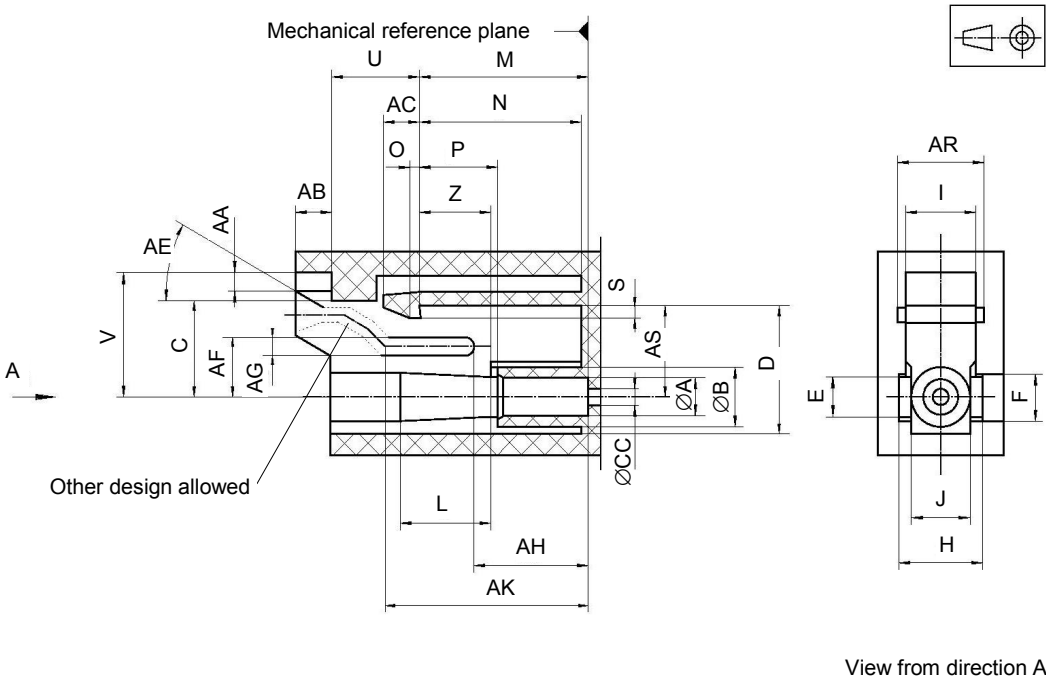
Envelope condition in accordance with ISO 8015.

Surface roughness $R_z = 0,2 \mu\text{m}$.

Figure 5 – Pin gauge for adaptor

Table 5 – Gauge pin dimensions

References	Dimensions			Notes
	Minimum	Basic	Maximum	
A	2,499 3 mm		2,499 5 mm	
B	12,5 mm		13,5 mm	
C	1 mm		1,5 mm	
D	28°		32°	



IEC 990/09

Figure 6 – Active device interface

Table 6 – Dimensions of active device interface

Reference	Dimensions			Notes
	Minimum	Basic	Maximum	
A	–		–	See Table 7
B	4,2 mm		4,4 mm	Diameter
C	6,31 mm		–	
D	8,93 mm		8,97 mm	
E	2,81 mm		2,85 mm	
F	3,02 mm		3,05 mm	
H	6 mm		6,05 mm	
I	5 mm		5,05 mm	
J	4,2 mm		4,25 mm	
L	–		6,5 mm	
M	11,9 mm		12 mm	
N	11,15 mm		11,5 mm	
O	0,75 mm		0,85 mm	
P	5,1 mm		–	
U	6,5 mm		6,7 mm	
V	8,45 mm		8,65 mm	
Z	4,8 mm		5,2 mm	
AA	–		0,9 mm	See note
AB	2,4 mm		2,6 mm	See note
AC	–		2,9 mm	
AD	–		1,2 mm	
AE	30°		40°	Angle in degrees
AF	4,11 mm		4,20 mm	
AG	1,25 mm		–	
AH	–		8,65 mm	
AK	14,8 mm		–	
AR	6,3 mm		–	
AS	6,31 mm		6,35 mm	
CC	0,31 mm		0,40 mm	Diameter
NOTE AA and AB correspond to a mechanical codification.				

Table 7 – Grade table

Grade	A		Notes
	Minimum	Maximum	
1	–	–	Resilient sleeve
2	2,500 mm	2,502 mm	
3	2,502 mm	2,504 mm	
4	2,502 mm	2,512 mm	

Annex A (informative)

Panel cutout

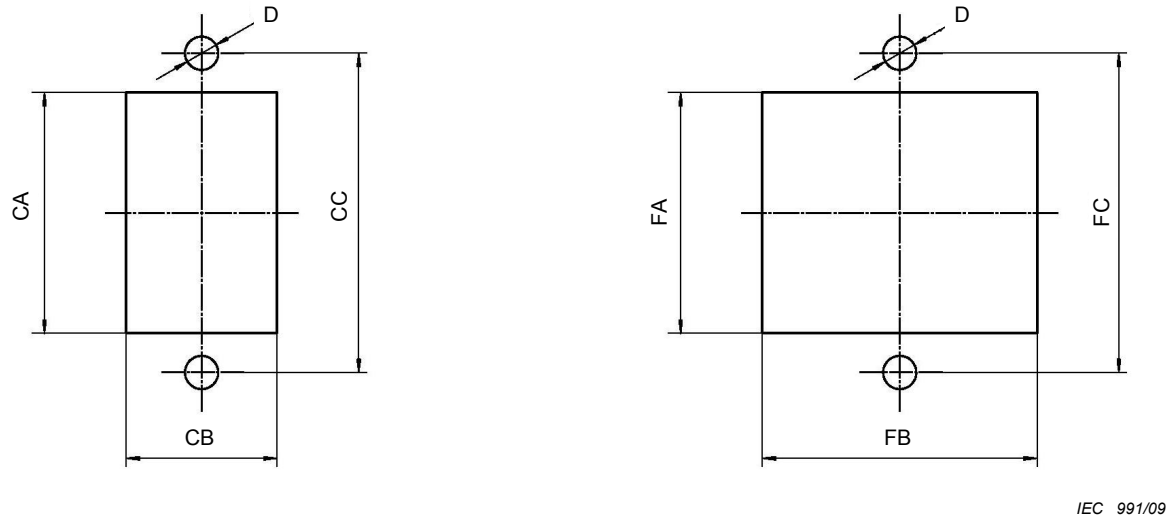


Figure A.1 – Simplex and duplex adaptor cutout

Table A.1 – Dimensions of the simplex and duplex adaptor cutout

Reference	Dimensions			Notes
	Minimum	Basic	Maximum	
CA	13,1 mm		13,5 mm	
CB	9,6 mm		10 mm	
CC	17,9 mm		18,1 mm	See note
FA	13,1 mm		13,5 mm	
FB	14,8 mm		15,2 mm	
FC	17,9 mm		18,1 mm	See note
D	2,2 mm		2,4 mm	Diameter, see note
NOTE May not be necessary for all versions.				

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