BS EN 61754-6:2013

BSI Standards Publication

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

Part 6: Type MU connector family

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National foreword

This British Standard is the UK implementation of EN 61754-6:2013. It is identical to IEC 61754-6:2013. It supersedes BS EN 61754-6:1997 which is withdrawn.

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.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English version

Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces - Part 6: Type MU connector family

(IEC 61754-6:2013)

Dispositifs d'interconnexion et composants passifs à fibres optiques - Interfaces de connecteurs à fibres optiques
(CEI 61754-6:2013)

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Steckgesichter von Lichtwellenleiter-Steckverbindern - Teil 6: Bauart MU-Steckverbinderfamilie
(IEC 61754-6:2013)

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Foreword

The text of document 86B/3627/FDIS, future edition 2 of IEC 61754-6, prepared by subcommittee 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 61754-6:2013.

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)	2014-05-26
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2014-08-26

This document supersedes EN 61754-6:1997 + A1:2001 + A2:2005.

EN 61754-6:2013 includes the following significant technical changes with respect to EN 61754-6:1997 + A1:2001 + A2:2005 :

a) addition of standard references;

b) revision of intermateability.

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The text of the International Standard IEC 61754-6:2013 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

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 61755-3-1		Fibre optic interconnecting devices and passive components -Fibre optic connector optical interfaces - Part 3-1:Connectors with 2,5 mm and 1,25 mm diameter cylindrical full zirconia ferrule, non-angled single mode non-dispersion shifted fibres	prEN 61755-3-1 [1)]	
IEC 61755-3-2		Fibre optic interconnecting devices and passive components -Fibre optic connector optical interfaces - Part 3-2: Connectors with 2,5 mm and 1,25 mm diameter cylindrical full zirconia ferrule, angled single mode non-dispersion shifted fibres	prEN 61755-3-2 [1)]	

[1)] At draft stage.

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

Part 6: Type MU connector family

1 Scope

This part of IEC 61754 defines the standard interface dimensions for type MU 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*

3 Description

The parent connector for type MU connector family is a miniature single-position plug which is characterized by a cylindrical, spring-loaded butting ferrule(s) of a 1,25 mm typical diameter, and a push-pull coupling mechanism. The optical alignment mechanism of the connectors is of a rigid hole or a resilient sleeve style.

This part 6 type MU connector family defines the standard interface dimensions of active device receptacles for the type MU connectors. The receptacles are used to retain the connector plugs 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 61754-6-1: Simplex plug connector interface – Push/pull (See Figure 1)
Interface IEC 61754-6-2: 4,5 mm duplex plug connector interface – Push/pull (See Figure 2)
Interface IEC 61754-6-3: Simplex adaptor connector interface – Push/pull (See Figure 3)
Interface IEC 61754-6-4: 4,5 mm duplex adaptor connector interface – Push/pull (see Figure 5)
Interface IEC 61754-6-5: 8-port adaptor connector interface – Push/pull (See Figure 6)
Interface IEC 61754-6-6: Plug connector interface – for printed board housings (See Figure 7)
Interface IEC 61754-6-7: Sleeve holder interface – for printed board housings (See Figure 8)
Interface IEC 61754-6-8: 2-port backplane housing interface – Self-retentive (See Figure 9)

Interface IEC 61754-6-9: 2-port printed board housing interface – Self-retentive (See Figure 10)

Interface IEC 61754-6-10: 8-port backplane housing interface – Self-retentive (See Figure 11)

Interface IEC 61754-6-11 8-port printed board housing interface – Self-retentive (See Figure 12)

Interface IEC 61754-6-12: Simplex active device receptacle interface – for PC connector plug (See Figure 13)

Interface IEC 61754-6-13: 4,5 mm duplex active device receptacle interface – for PC connector plug (See Figure 15)

Interface IEC 61754-6-14: 6,25 mm duplex active device receptacle interface – for PC connector plug (See Figure 17)

Interface IEC 61754-6-15: Plug connector interface – for printed board housings, APC 8 degrees (See Figure 19)

Interface IEC 61754-6-16: Simplex plug connector interface – Push/pull, APC 8 degrees (See Figure 20)

Interface IEC 61754-6-17: 4,5 mm duplex plug connector interface – Push/pull, APC 8 degrees (See Figure 21)

Interface IEC 61754-6-18: 6,25 mm duplex plug connector interface – Push/pull, APC 8 degrees (See Figure 22)

Interface IEC 61754-6-19: 6,25 mm duplex plug connector interface – Push/pull (See Figure 23)

Interface IEC 61754-6-20: 6,25 mm duplex adaptor connector interface – Push/pull (See Figure 24)

Interface IEC 61754-6-21: Horizontal duplex plug connector interface – Push/pull (See Figure 25)

Interface IEC 61754-6-22: Horizontal duplex adaptor connector interface – Push/pull (See Figure 26)

The plugs of interfaces IEC 61754-6-1, IEC 61754-6-2, IEC 61754-6-6, IEC 61754-6-19 and IEC 61754-6-21 have a ferrule(s) with a spherically polished endface, and realize physical contact (PC). The plugs of interfaces IEC 61754-6-15, IEC 61754-6-16, IEC 61754-6-17 and IEC 61754-6-18 have a ferrule(s) with a spherically polished angled endface and realize angled PC (APC).

The type MU connector family comprises two types of connector set: MU-A connector set (see Annex A) and MU-B connector set (see Annex B). The MU-A connector set is a plug/adaptor configuration with a push-pull coupling mechanism. The MU-B connector set is a plug-in type back-plane connector configuration which is plug/backplane and printed board housings/plug for printed board housing/sleeve holder configuration and is equipped with a self-retentive mechanism.

The type MU-A connector set consists of simplex and duplex plugs, and simplex, duplex and 8-port adaptors. The plugs are common to the backplane connector housings of the type MU-B connector set.

The type MU-B connector set consists of 2-port and 8-port backplane and printed board connector housings, simplex and duplex plugs, plug for printed board connector housings, and sleeve holder. The plug for printed board connector housing is used as a jack together with the sleeve holder. The jack is attached into the printed board connector housing.

TableS 1, 2 and 3 show the intermateablitiy of the standard interfaces. It shall be noted however that in order to obtain the designated optical performance, any plug shall be connected to a counterpart plug whose ferrule end is polished to the same condition.

Table 1 – MU-A connector set

Plugs	Adaptors				
	61754-6-3	61754-6-4	61754-6-5	61754-6-20	61754- 6-22
61754-6-1	Mate	Mate	Mate	Mate	Mate
61754-6-2	Not mate	Mate	Mate	Not mate	Not mate
61754-6-16	Mate	Mate	Mate	Mate	Mate
61754- 6-17	Not Mate	Mate	Mate	Not Mate	Not mate
61754-6-18	Not mate	Not mate	Not mate	Mate	Not mate
61754-6-19	Not mate	Not mate	Not mate	Mate	Not mate
61754-6-21	Not mate	Not mate	Not mate	Not mate	Mate

Table 2 – MU-B connector set

Plugs	Connector housings			
	Backplane connector housing		Printed board connector housing	
	61754-6-8	**61754-6-10**	**61754-6-9**	**61754-6-11**
61754-6-1	Mate	Mate	Not mate	Not mate
61754-6-2	Mate	Mate	Not mate	Not mate
61754-6-6 with 61754-6-7	Not mate	Not mate	Mate	Mate
61754-6-15 with 61754- 6-7	Not mate	Not mate	Mate	Mate
61754-6-16	Mate	Mate	Not mate	Not mate
61754-6-17	Mate	Mate	Not mate	Not mate
61754-6-18	Not mate	Not mate	Not mate	Not mate
61754-6-19	Not mate	Not mate	Not mate	Not mate
61754-6-21	Not mate	Not mate	Not mate	Not mate

Table 3 – MU receptacles

Plugs	Receptacles		
	61754-6-12	**61754-6-13**	**61754-6-14**
61754-6-1	Mate	Mate	Mate
61754-6-2	Not mate	Mate	Not mate
61754-6-16	Not mate	Not mate	Not mate
61754-6-17	Not mate	Not mate	Not mate
61754-6-18	Not mate	Not mate	Not mate
61754-6-19	Not mate	Not mate	Mate
61754-6-21	Not mate	Not mate	Not mate

Figure 1 is an example of a simplex plug connector interface. Table 4 gives dimensions of the simplex plug connector interface and Table 5 gives the grade of the simplex plug connector interface.

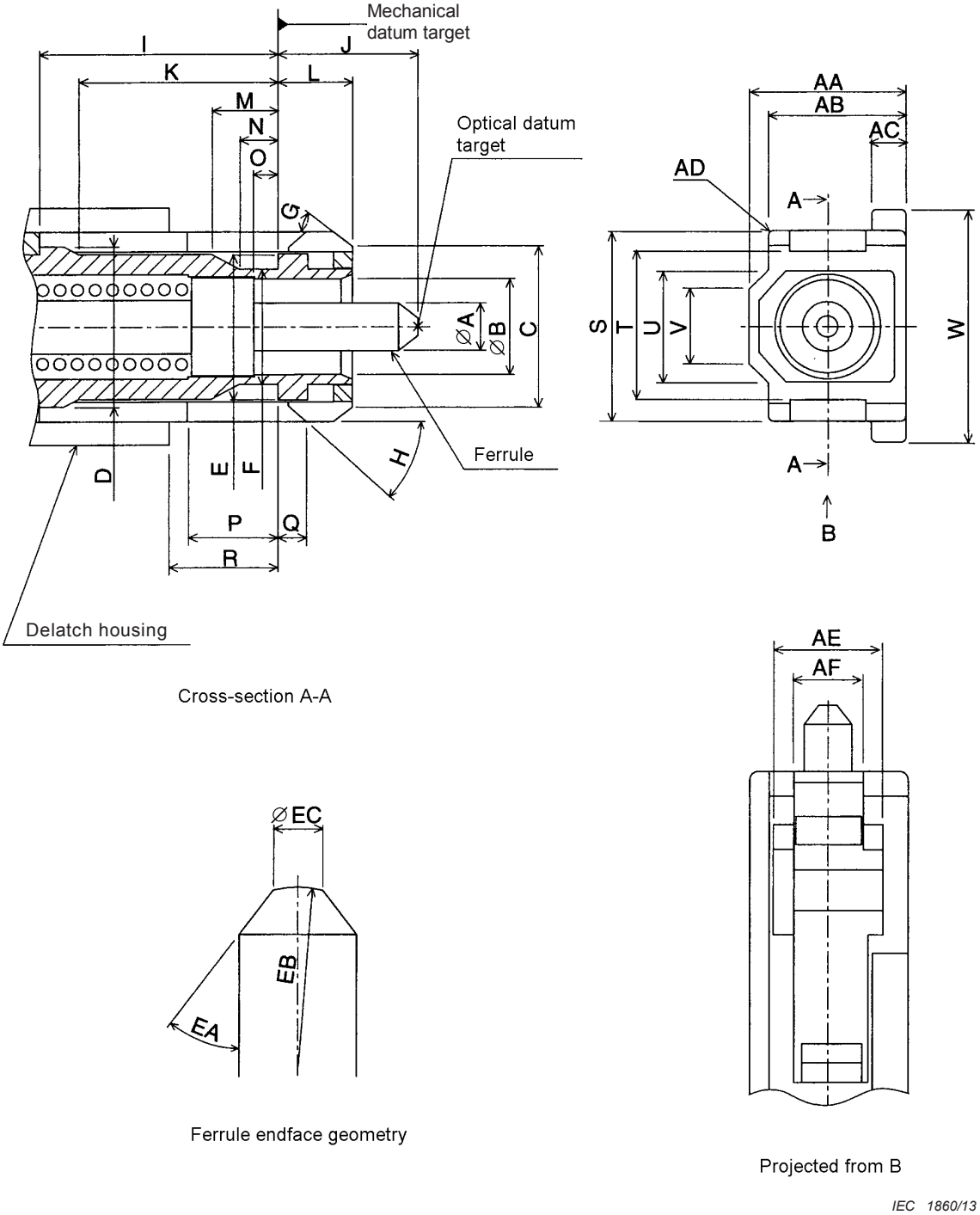


Figure 1 – Simplex plug connector interface – Push/pull

Table 4 – Dimensions of the simplex plug connector interface

Reference	Dimensions		Remarks
	Minimum	Maximum	
A		1,249 5 mm	[a], see Table 5
B	2,6 mm	2,7 mm	
C	4,6 mm	4,8 mm	
D	4,65 mm	4,75 mm	
E	4,3 mm	4,4 mm	
F	3,3 mm	3,4 mm	
G	25°	35°	Angle
H	25°	35°	Angle
I	6,55 mm	–	[b]
J	4,2 mm	4,5 mm	[c]
K	5,5 mm	–	
L	2,4 mm	2,5 mm	
M	1,5 mm	–	
N	0,6 mm	–	
O	0,5 mm	–	
P	2,6 mm	–	[b]
Q	1 mm	1,1 mm	[b] and [d]
R	2,65 mm	2,9 mm	[b]
S	5,5 mm	5,6 mm	
T	4,3 mm	4,5 mm	
U	–	3,7 mm	
V	–	2,4 mm	
W	6,5 mm	6,6 mm	
AA	4,3 mm	4,4 mm	
AB	3,85 mm	3,95 mm	
AC	0,7 mm	0,9 mm	
AD	0,2 mm	–	Radius
AE	3 mm	–	
AF	2,2 mm	2,3 mm	
EA	32.5°	45°	Angle, [e]
EB	5 mm	30 mm	Radius, [f]
EC	0,45 mm	0,73 mm	Diameter

[a] A chamfer or radius is allowed to a maximum depth of 0,5 mm from the ferrule endface.

[b] The delatch housing shall be movable toward the right and the left directions. These dimensions are given when the coupling sleeve is moved in its most right-direction position.

[c] The dimension J is given for the plug endface when not mated. It is noticed that the ferrule is movable by a certain axial compression force with direct contacting endfaces, and therefore the dimension J is variable. Ferrule compression force shall be 5,5 N to 6,5 N when the position of the optical datum target from the mechanical datum target is moved in the range of 3,9 mm to 4,1 mm. In addition, the dimension J shall become less than 3,25 mm with a relatively large axial compression force.

[d] The right-side position of Q shall become the left-side position to the mechanical datum target when the coupling sleeve is moved to its most left-direction position.

[e] 40° to 45° are desirable to minimize debris for backplane connectors.

[f] Dome eccentricity of the spherically polished ferrule endface shall be less than 70 μm.

Table 5 – Grade

Grade	Dimensions mm		Remarks
	A		
	Minimum	Maximum	
A	–	–	[a]
B	–	–	[a]
C	–	–	[a]
D	–	–	[a]
Am	1,248 3	1,249 5	[b]
Bm	1.246 7	1,249 5	[b]

[a] See IEC 61755-3-1

[b] See IEC 61755-6-1.

Figure 2 is an example of a 4,5 mm duplex plug connector interface. Table 6 gives dimensions of the 4,5 mm duplex plug connector interface e and Table 7 gives the grade of the 4,5 mm duplex plug connector interface.

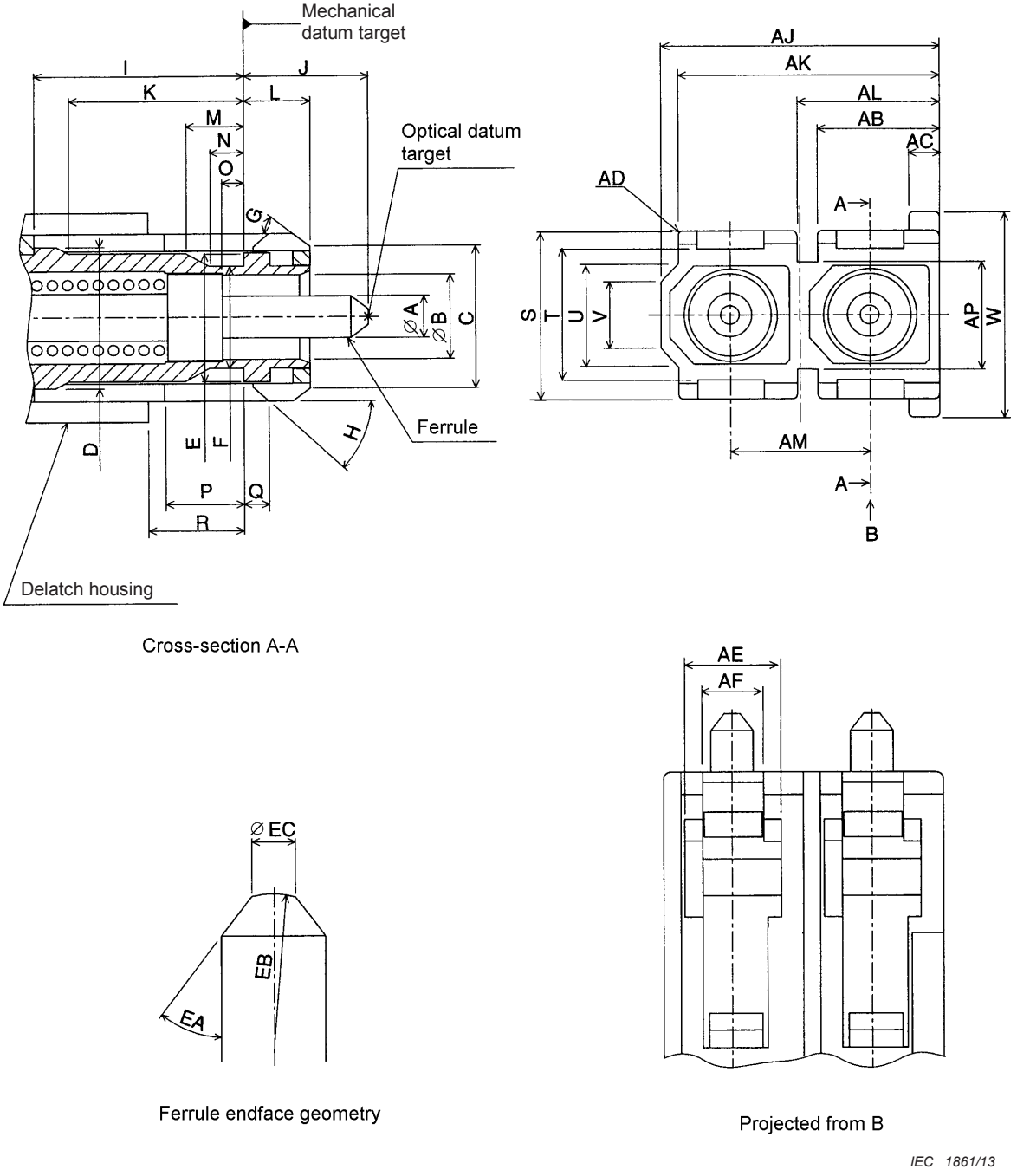


Figure 2 – 4,5 mm duplex plug connector interface – Push/pull

Table 6 – Dimensions of the 4,5 mm duplex plug connector interface

Reference	Dimensions		Remarks
	Minimum	Maximum	
A		1,249 5 mm	[a], see Table 7
B	2,6 mm	2,7 mm	
C	4,6 mm	4,8 mm	
D	4,65 mm	4,75 mm	
E	4,3 mm	4,4 mm	
F	3,3 mm	3,4 mm	
G	25°	35°	Angle
H	25°	35°	Angle
I	6,55 mm	–	\b
J	4,2 mm	4,5 mm	c
K	5,5 mm	–	
L	2,4 mm	2,5 mm	
M	1,5 mm	–	
N	0,6 mm	–	
O	0,5 mm	–	
P	2,6 mm	–	b
Q	1,0 mm	1,1 mm	b and d
R	2,65 mm	2,9 mm	b
S	5,5 mm	5,6 mm	
T	4,3 mm	4,5 mm	
U	–	3,7 mm	
V	–	2,4 mm	
W	6,5 mm	6,6 mm	
AB	3,7 mm	3,85 mm	
AC	0,7 mm	0,9 mm	
AD	0,2 mm	–	Radius
AE	3,0 mm	–	
AF	2,2 mm	2,3 mm	
AJ	8,8 mm	8,9 mm	
AK	8,35 mm	8,45 mm	
AL	4,55 mm	4,7 mm	
AM	4,45 mm	4,55 mm	
AP	–	3,7 mm	
EA	32.5°	45°	e
EB	5 mm	30 mm	Radius f
EC	0,45 mm	0,73 mm	Diameter

[a] A chamfer or radius is allowed to a maximum depth of 0,5 mm from the ferrule endface.

[b] The delatch housing shall be movable toward the right and the left directions. These dimensions are given when the coupling sleeve is moved in its most right-direction position.

[c] The dimension J is given for the plug endface when not mated. It is noticed that the ferrule is movable by a certain axial compression force with direct contacting endfaces, and therefore the dimension J is variable. Ferrule compression force shall be 5,5 N to 6,5 N when the position of the optical datum target from the mechanical datum target is moved in the range of 3,9 mm to 4,1 mm. In addition, the dimension J shall become less than 3,25 mm with a relatively large axial compression force.

[d] The right-side position of Q shall become left-side position to the mechanical datum target when the coupling sleeve is moved to its most left-direction position.

[e] 40° to 45° are desirable to minimize debris for backplane connectors.

[f] Dome eccentricity of the spherically polished ferrule endface shall be less than 70 μm.

Table 7 – Grade

Grade	Dimensions mm		Remarks
	A		
	Minimum	Maximum	
A	–	–	[a]
B	–	–	[a]
C	–	–	[a]
D	–	–	[a]
Am	1,248 3	1,249 5	[b]
Bm	1,246 7	1,249 5	[b]

[a] See IEC 61755-3-1.

[b] See IEC 61755-6-1.

Figure 3 is an example of a simplex adaptor connector interface. Table 8 gives dimensions of the simplex adaptor connector interface and Table 9 gives the grade of the simplex adaptor connector interface.

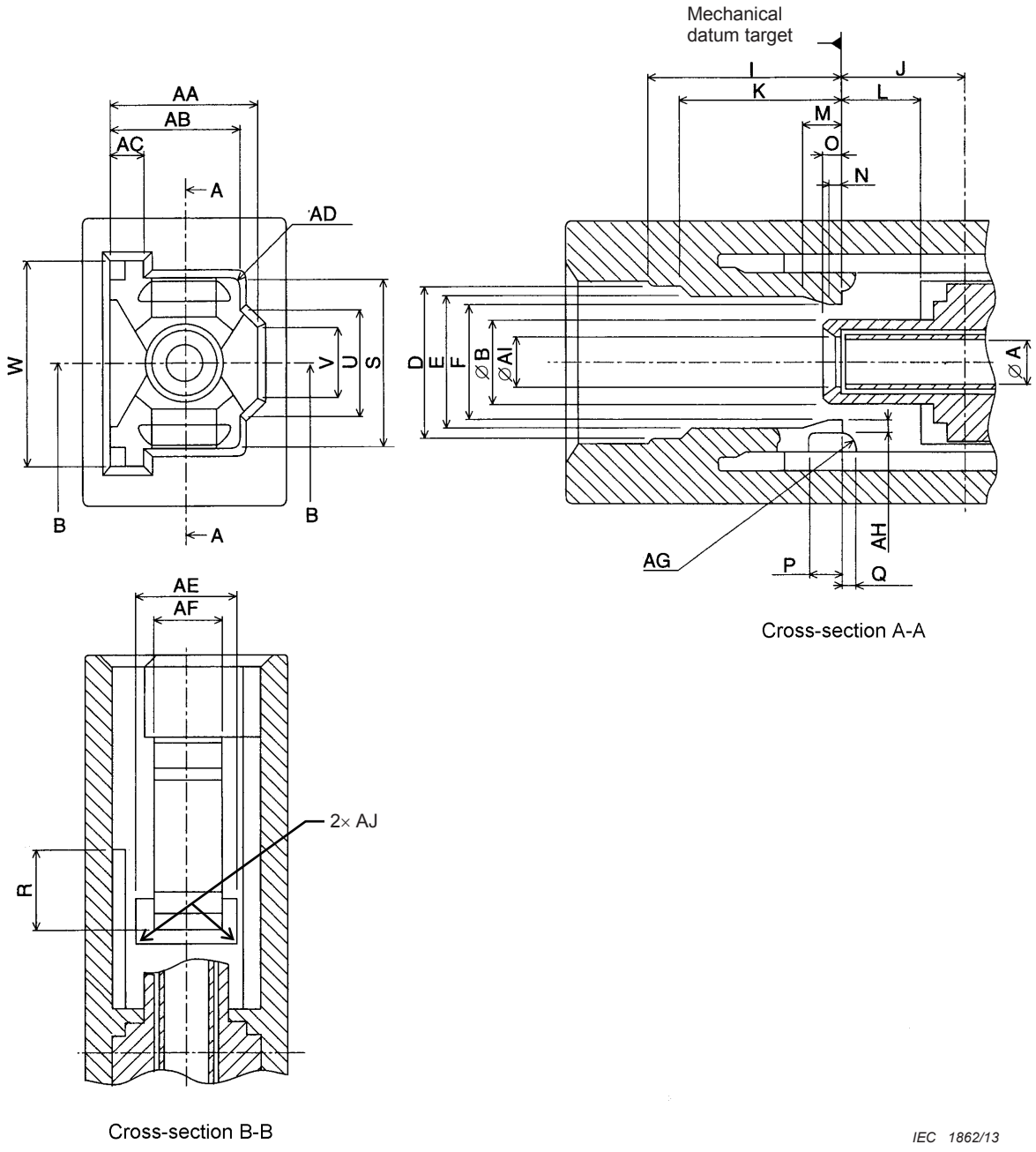


Figure 3 – Simplex adaptor connector interface – Push/pull

Table 8 – Dimensions of the simplex adaptor connector interface

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
A			Diameter, see Table 9
B	2,39	2,59	Diameter
D	4,8	5	
E	4,55	–	
F	2,9	3,5	[a]
I	–	6,5	
J	3,9	4,1	
K	–	5,4	
L	2,55	2,7	
M	–	1,4	
N	–	0,55	
O	–	0,6	
P	–	1,2	
Q	–	0,4	
R	–	2,55	
S	5,65	5,75	
U	3,8	4	
V	3,3	–	
W	6,7	–	
AA	4,45	4,55	
AB	4,01	4,11	
AC	0,95	1,15	
AD	–	0,2	Radius
AE	2,8	2,95	
AF	1,9	2,1	
AG	0,3	–	Radius
AH	0,4	0,55	
AI	1,34	1,44	Diameter
AJ	–	0,3	Radius

[a] The dimension F shall become greater than 4,5 mm when a plug is coupled to or removed from the adaptor.

Table 9 – Grade

Grade	Dimensions mm		Remarks
	Minimum	Maximum	
1	–	–	Resilient sleeve [a]

[a] The connector alignment feature is a resilient alignment sleeve. The feature shall accept a gauge pin to the centre of the adaptor with a force of 1 N to 2,5 N on 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 J. The gauge pin is shown in Figure 4 and Table 10.

Figure 4 is an example of a gauge pin for resilient alignment sleeve. Table 10 gives gauge pin dimensions.

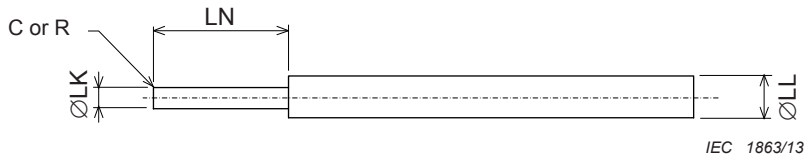


Figure 4 – Gauge pin for resilient alignment sleeve

Table 10 – Gauge pin dimensions

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
LK	1,248 5	1,249 5	Surface roughness grade N4 (0,2 μm radius)
LL	2,6	2,8	
LN	4,7	9,5	

Figure 5 is an example of a 4,5 mm duplex adaptor connector interface. Table 11 gives dimensions of the 4,5 mm duplex adaptor connector interface and Table 12 gives the grade of the 4,5 mm duplex adaptor connector interface.

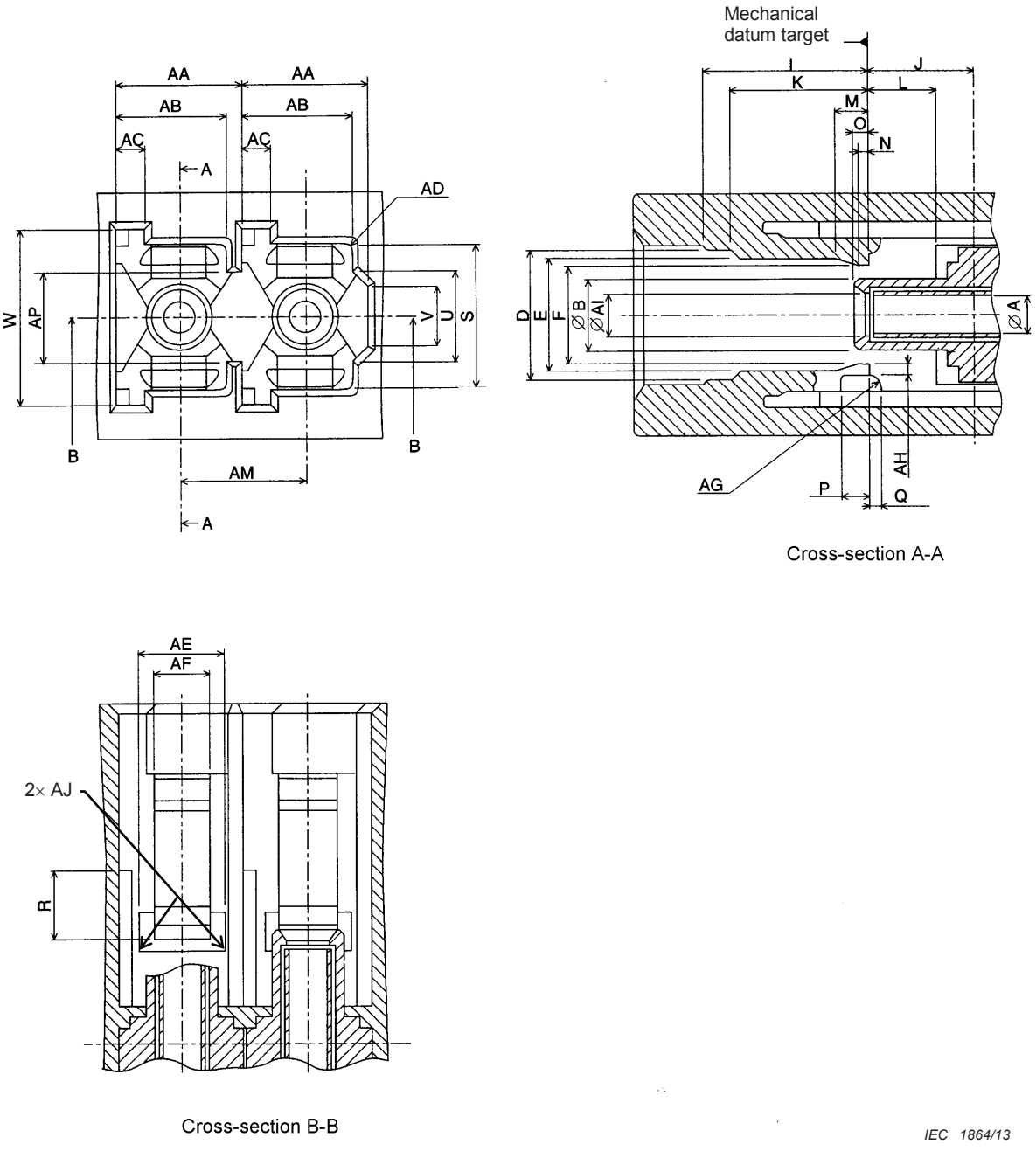


Figure 5 – 4,5 mm duplex adaptor connector interface – Push/pull

Table 11 – Dimensions of the 4,5 mm duplex adaptor connector interface

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
A			See Table 12
B	2,39	2,59	
D	4,8	5	
E	4,55	–	
F	2,9	3,5	[a]
I	–	6,5	
J	3,9	4,1	
K	–	5,4	
L	2,55	2,7	
M	–	1,4	
N	–	0,55	
O	–	0,6	
P	–	1,2	
Q	–	0,4	
R	–	2,55	
S	5,65	5,75	
U	3,8	4	
V	3,3	–	
W	6,7	–	
AA	4,45	4,55	
AB	4,01	4,11	
AC	0,95	1,15	
AD	–	0,2	Radius
AE	2,8	2,95	
AF	1,9	2,1	
AG	0,3	–	Radius
AH	0,4	0,55	
AI	1,34	1,44	Diameter
AJ	–	0,3	Radius
AM	4,45	4,55	
AP	3,8	4	

[a] The dimension F shall become greater than 4,5 mm when a plug is coupled to or removed from the adaptor.

Table 12 – Grade

Grade	Dimensions mm		Remarks
	Minimum	Maximum	
1			Resilient sleeve [a]

[a] The connector alignment feature is a resilient alignment sleeve. The feature shall accept a gauge pin to the centre of the adaptor with a force of 1 N to 2,5 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 J. The gauge pin is shown in Figure 4 and Table 10.

Figure 6 is an example of an 8-port adaptor connector interface. Table 13 gives dimensions of the 8-port adaptor connector interface and Table 14 gives the grade of the 8-port adaptor connector interface.

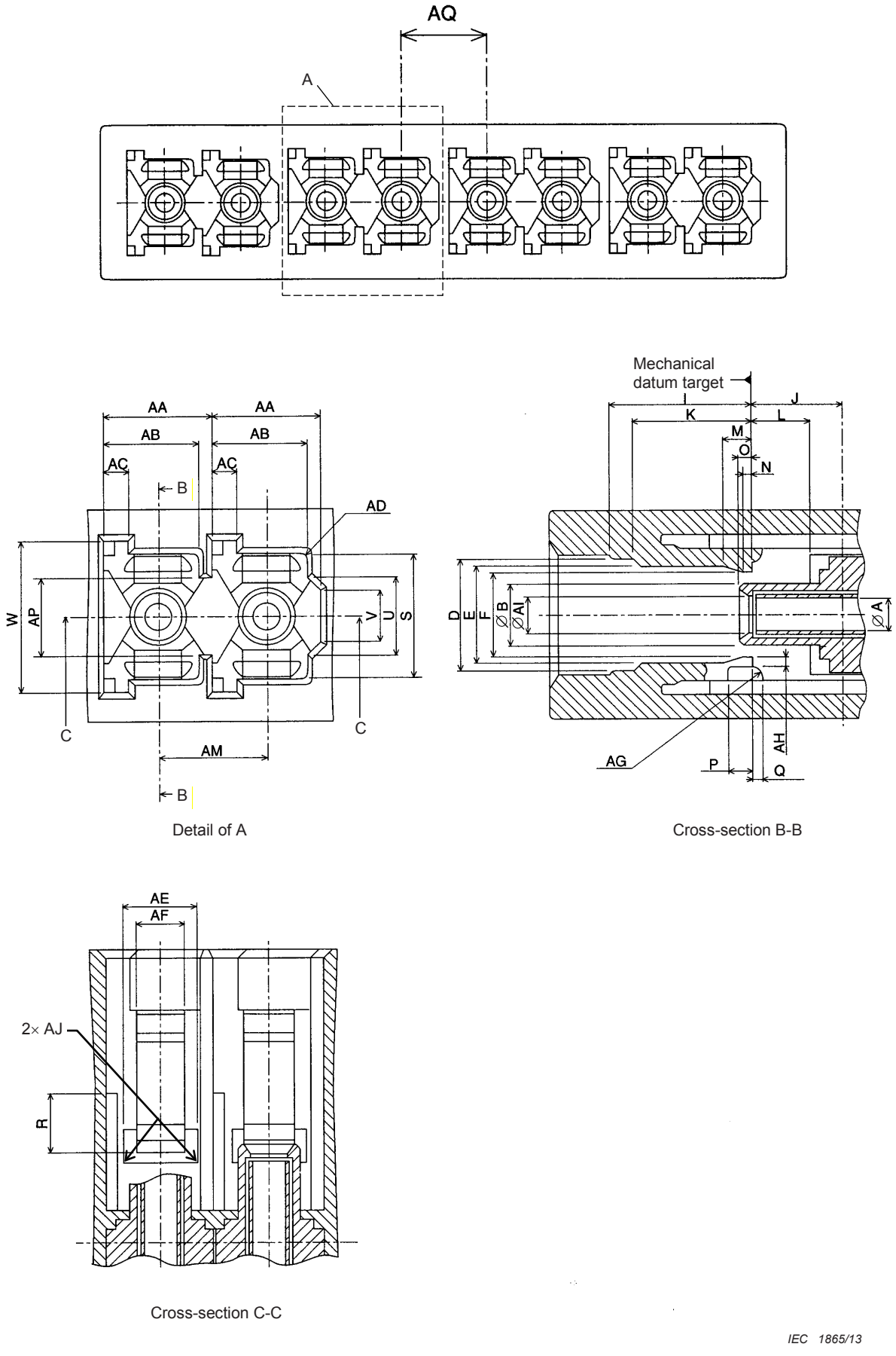


Figure 6 – 8-port adaptor connector interface – Push/pull

Table 13 – Dimensions of the 8-port adaptor connector interface

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
A			See Table 14
B	2,39	2,59	
D	4,8	5	
E	4,55	–	
F	2,9	3,5	[a]
I	–	6,5	
J	3,9	4,1	
K	–	5,4	
L	2,55	2,7	
M	–	1,4	
N	–	0,55	
O	–	0,6	
P	–	1,2	
Q	–	0,4	
R	–	2,55	
S	5,65	5,75	
U	3,8	4	
V	3,3	–	
W	6,7	–	
AA	4,45	4,55	
AB	4,01	4,11	
AC	0,95	1,15	
AD	–	0,2	Radius
AE	2,8	2,95	
AF	1,9	2,1	
AG	0,3	–	Radius
AH	0,4	0,55	
AI	1,34	1,44	Diameter
AJ	–	0,3	Radius
AM	4,45	4,55	
AP	3,8	4	
AQ	4,8	5,2	

[a] The dimension F shall become greater than 4,5 mm when a plug is coupled to or removed from the adaptor.

Table 14 – Grade

Grade	Dimensions mm		Remarks
	Minimum	Maximum	
1			Resilient sleeve [a]

[a] The connector alignment feature is a resilient alignment sleeve. The feature shall accept a gauge pin to the centre of the adaptor with a force of 1 N to 2,5 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 J. The gauge pin is shown in Figure 4 and Table 10.

Figure 7 is an example of a plug connector interface. Table 15 gives dimensions of the plug connector interface and Table 16 gives the grade of the plug connector interface.

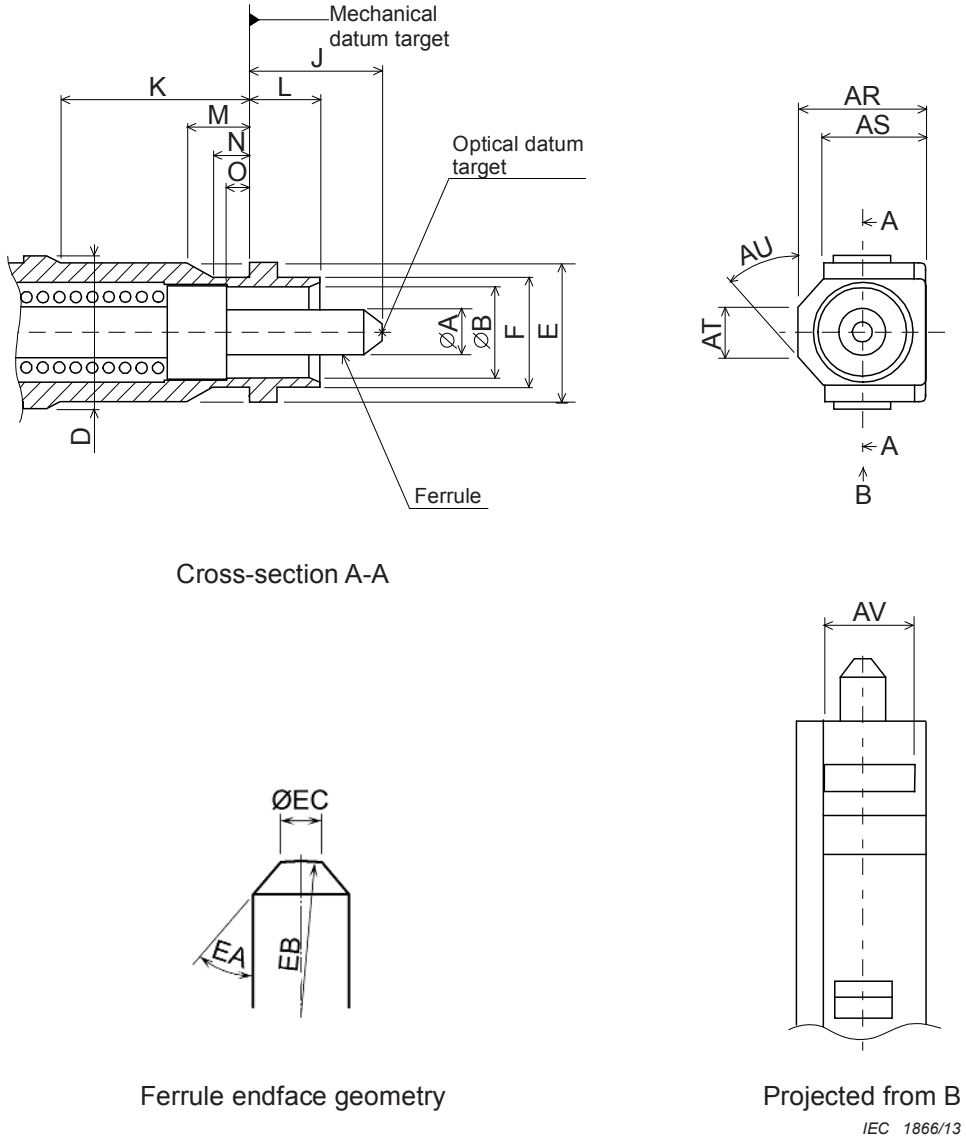


Figure 7 – Plug connector interface – For printed board housings

Table 15 – Dimensions of the plug connector interface

Reference	Dimensions		Remarks
	Minimum	Maximum	
A		1,249 5 mm	[a] See Table 16
B	2,6 mm	2,7 mm	Diameter
D	4,65 mm	4,75 mm	
E	4,3 mm	4,4 mm	
F	3,3 mm	3,4 mm	
J	4,2 mm	4,5 mm	[b]
K	5,5 mm	–	
L	2,4 mm	2,5 mm	
M	1,5 mm	–	
N	0,6 mm	–	
O	0,5 mm	–	
AR	3,65 mm	3,75 mm	
AS	2,9 mm	3,0 mm	
AT	1,7 mm	2,1 mm	
AU	43°	47°	
AV	–	3,0 mm	
EA	32,5°	45°	[c]
EB	5 mm	30 mm	Radius [d]
EC	0,45 mm	0,73 mm	

[a] A chamfer or radius is allowed to a maximum depth of 0,5 mm from the ferrule endface.

[b] The dimension J is given for the plug endface when not mated. It is noticed that the ferrule is movable by a certain axial compression force with direct contacting endfaces, and therefore the dimension J is variable. Ferrule compression force shall be 5,5 N to 6,5 N when the position of the optical datum target from the mechanical datum target is moved in the range of 3,9 mm to 4,1 mm. In addition, the dimension J shall become less than 3,25 mm with a relatively large axial compression force.

[c] 40° to 45° are desirable to minimize debris for backplane connectors.

[d] Dome eccentricity of the spherically polished ferrule endface shall be less than 70 μm.

Table 16 – Grade

Grade	Dimensions mm		Remarks
	A		
	Minimum	Maximum	
A	–	–	[a]
B	–	–	[a]
C	–	–	[a]
D	–	–	[a]
Am	1,248 3	1,249 5	[b]
Bm	1,246 7	1,249 5	[b]

[a] See IEC 61755-3-1.

[b] See IEC 61755-6-1.

Figure 8 is an example of the sleeve holder interface. Table 17 gives dimensions of the sleeve holder interface and Table 18 gives the grade of the sleeve holder interface.

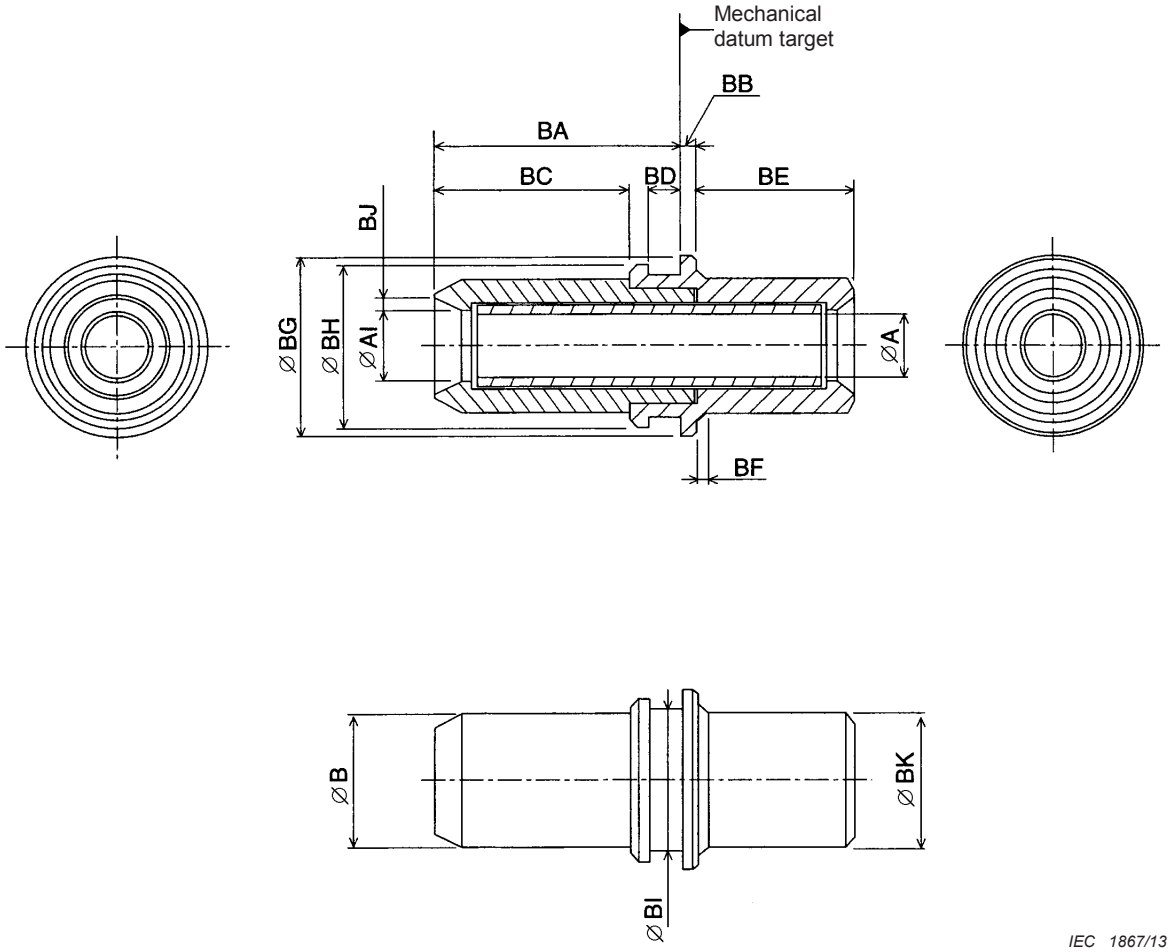


Figure 8 – Sleeve holder interface

Table 17 – Dimensions of the sleeve holder interface

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
A			See Table 18
B	2,54	2,59	Diameter
AI	1,34	1,39	Diameter
BA	4,65	4,85	
BB	0,20	0,30	
BC	3,65	3,85	
BD	0,65	0,85	
BE	2,9	3,1	
BF	–	0,25	45° chamfer
BG	3,5	3,54	Diameter
BH	3,1	3,2	Diameter
BI	2,5	2,7	Diameter
BJ	0,29	0,37	
BK	2,49	2,59	Diameter

Table 18 – Grade

Grade	Dimensions mm		Remarks
	Minimum	Maximum	
1			Resilient sleeve [a]

[a] The connector alignment feature is a resilient alignment sleeve. The feature shall accept a gauge pin to a depth of 4,3 mm from the left side with a force of 1 N to 2,5 N under the condition that another gauge pin is inserted into the feature from the other side. The gauge pin is shown in Figure 4 and Table 10.

Figure 9 is an example of the 2-port backplane housing interface. Table 19 gives dimensions of the 2-port backplane housing interface and Table 20 gives the grade of the 2-port backplane housing interface.

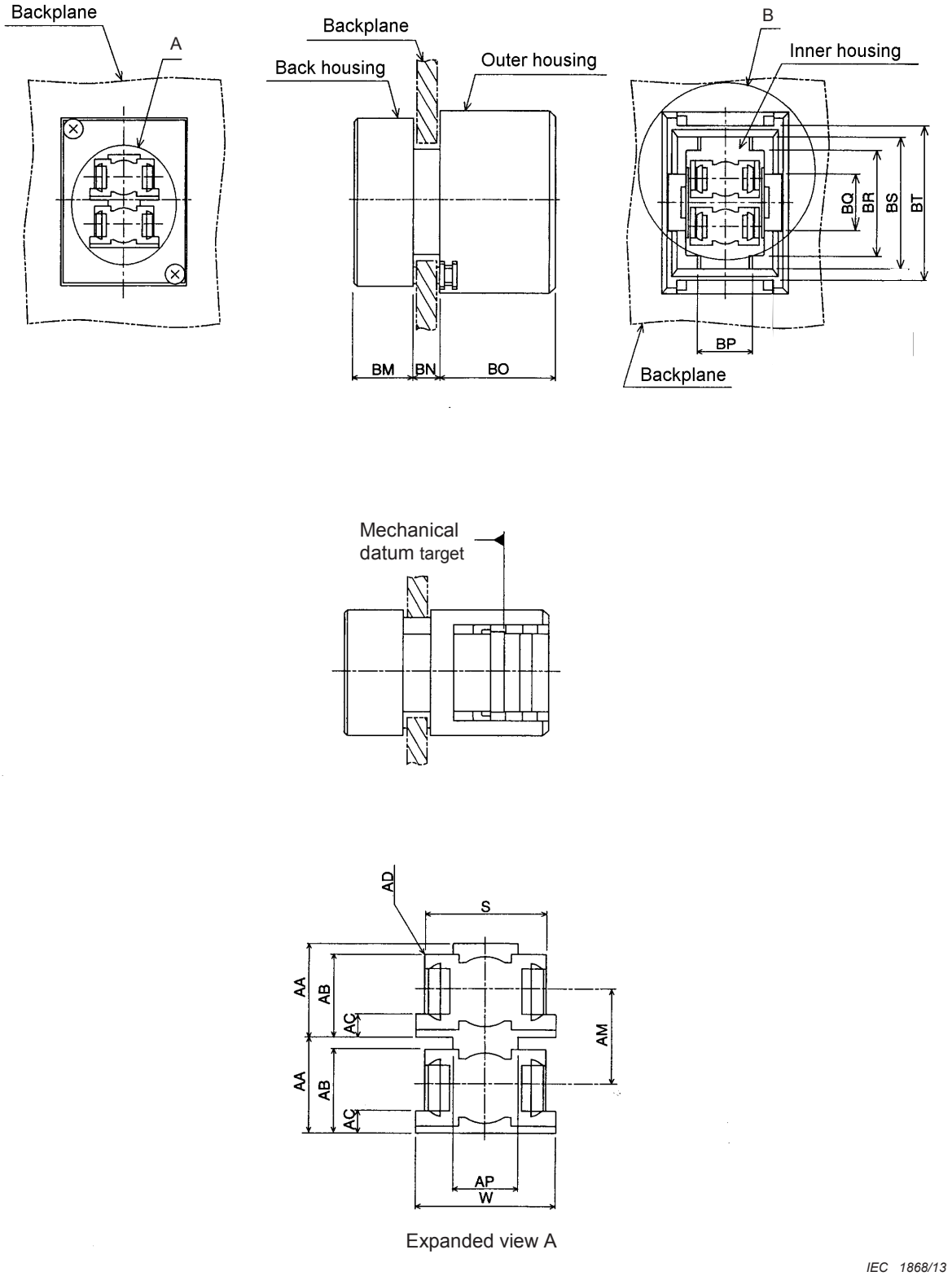
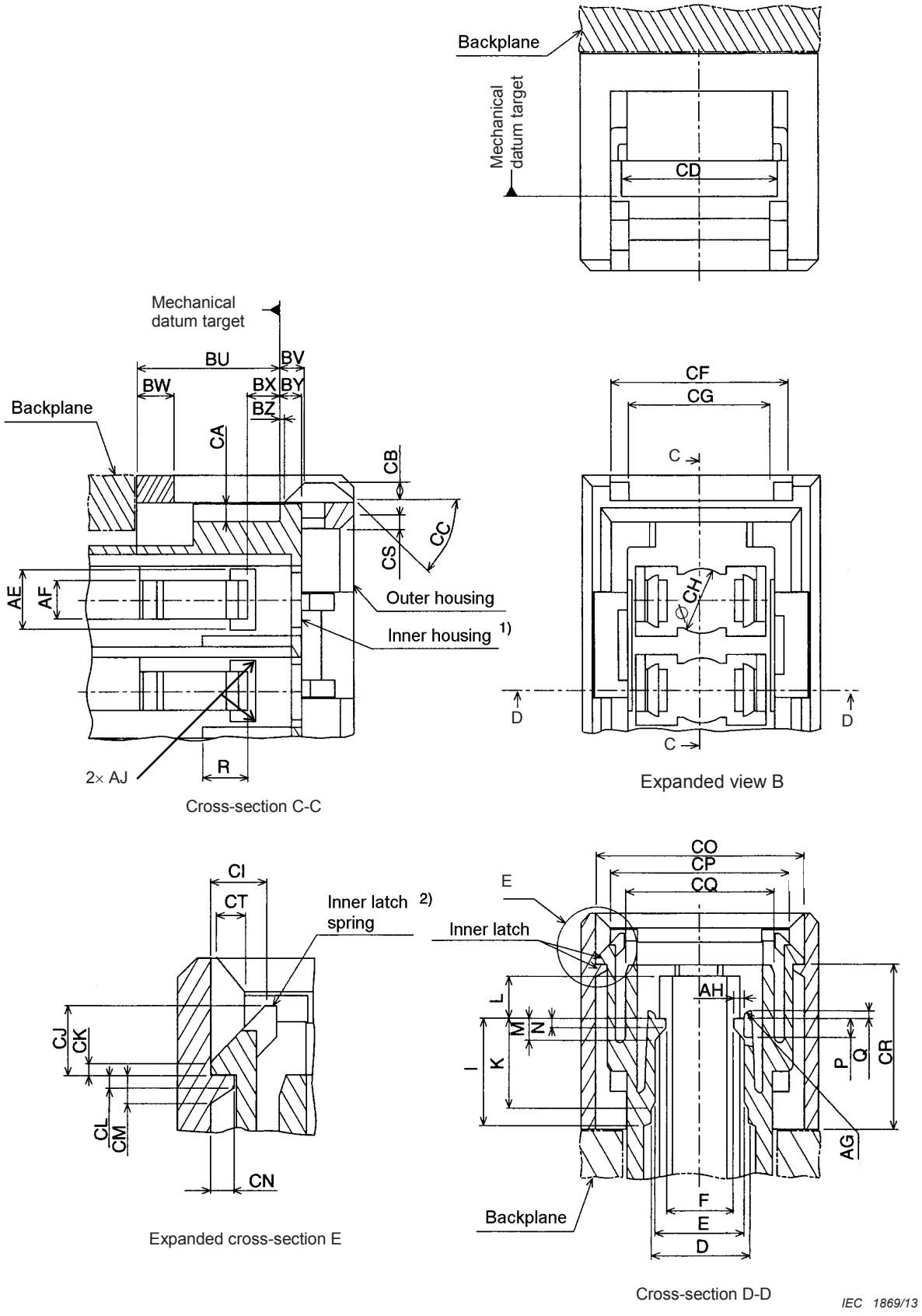


Figure 9 *(continued overleaf)*



NOTE 1 In the cross-section C-C figure, the inner housing should be movable to the right by at least 0,9 mm, and to the left by at least 2 mm when the inner latch is released.
NOTE 2 In the expanded cross-section E figure, the inner latch spring should be moved by more than 0,65 mm to the right when the inner latch is released or latched.

Figure 9 – 2-port backplane housing interface

Table 19 – Dimensions of the 2-port backplane housing interface *(1 of 2)*

Reference	Dimensions		Remarks
	Minimum	Maximum	
D	4,8 mm	5 mm	
E	4,55 mm	–	
F	2,9 mm	3,5 mm	[a]
I	–	6,5 mm	
K	–	5,4 mm	
L	2,6 mm	2,7 mm	
M	–	1,4 mm	
N	–	0,6 mm	
P	–	1,2 mm	
Q	–	0,4 mm	
R	–	2,55 mm	
S	5,65 mm	5,75 mm	
W	6,7 mm	–	
AA	4,45 mm	4,55 mm	
AB	4,01 mm	4,11 mm	
AC	0,95 mm	1,15 mm	
AD	–	0,2 mm	Radius
AE	2,8 mm	2,95 mm	
AF	1,9 mm	2,1 mm	
AG	0,3 mm	–	Radius
AH	0,4 mm	0,55 mm	
AJ	–	0.3 mm	Radius
AM	4,45 mm	4,55 mm	
AP	3,8 mm	4,0 mm	
BM	–	–	See Table 20
BN	–	–	See Table 20
BO	12,25 mm	12,35 mm	
BP	5,5 mm	5,7 mm	
BQ	4,6 mm	4,7 mm	
BR	11,2 mm	11,4 mm	
BS	13,95 mm	14,05 mm	
BT	16,2 mm	16,3 mm	
BU	7,72 mm	7,78 mm	[b]
BV	1,1 mm	1,4 mm	[b]
BW	2,2 mm	2,6 mm	
BX	1,95 mm	2,05 mm	
BY	1,15 mm	1,25 mm	
BZ	0,3 mm	0,4 mm	[b]
CA	0,725 mm	0,925 mm	
CB	0,9 mm	1,1 mm	
CC	35°	50°	Angle
CD	8,1 mm	9,1 mm	
CF	10,05 mm	10,35 mm	
CG	8,1 mm	8,3 mm	
CH	3,4 mm	3,6 mm	Diameter
CI	1,17 mm	1,27 mm	
CJ	1,7 mm	2,3 mm	
CK	0,2 mm	0,3 mm	
CL	0,3 mm	0,4 mm	
CM	0,8 mm	1 mm	
CN	0,55 mm	0,65 mm	
CO	11,55 mm	11,65 mm	
CP	9,95 mm	10,03 mm	

Table 19 *(2 of 2)*

Reference	Dimensions		Remarks
	Minimum	Maximum	
CQ	7,92 mm	8 mm	
CR	9,37 mm	9,43 mm	
CS	0,55 mm	0,65 mm	45° chamfer
CT	0,55 mm	0,65 mm	45° chamfer

[a] The dimension F shall become greater than 4,5 mm when a plug is coupled to or removed from the backplane housing.

[b] These dimensions are given when the inner housing is moved in its most left-side position under the condition that the inner latch is completed.

Table 20 – Grade

Grade	Reference	Dimensions mm		Remarks
		Minimum	Maximum	
1	BM BN	6 2,65	6,2 2,75	Backplane thickness 2,4 mm
2	BM BN	6 3,45	6,2 3,55	Backplane thickness 3,2 mm

Figure 10 is an example of the 2-port printed board housing interface. Table 21 gives dimensions of the 2-port printed board housing interface.

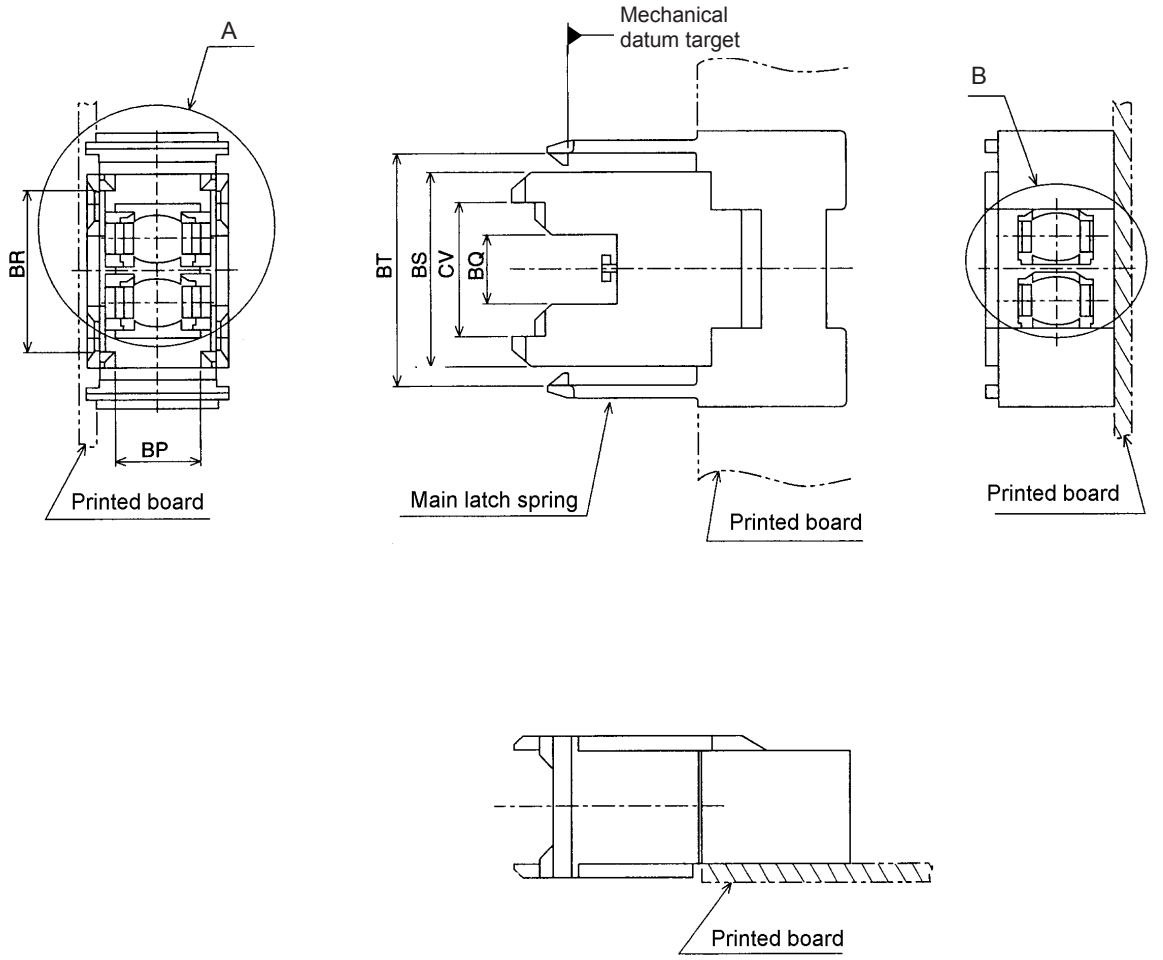


Figure 10 *(continued overleaf)*

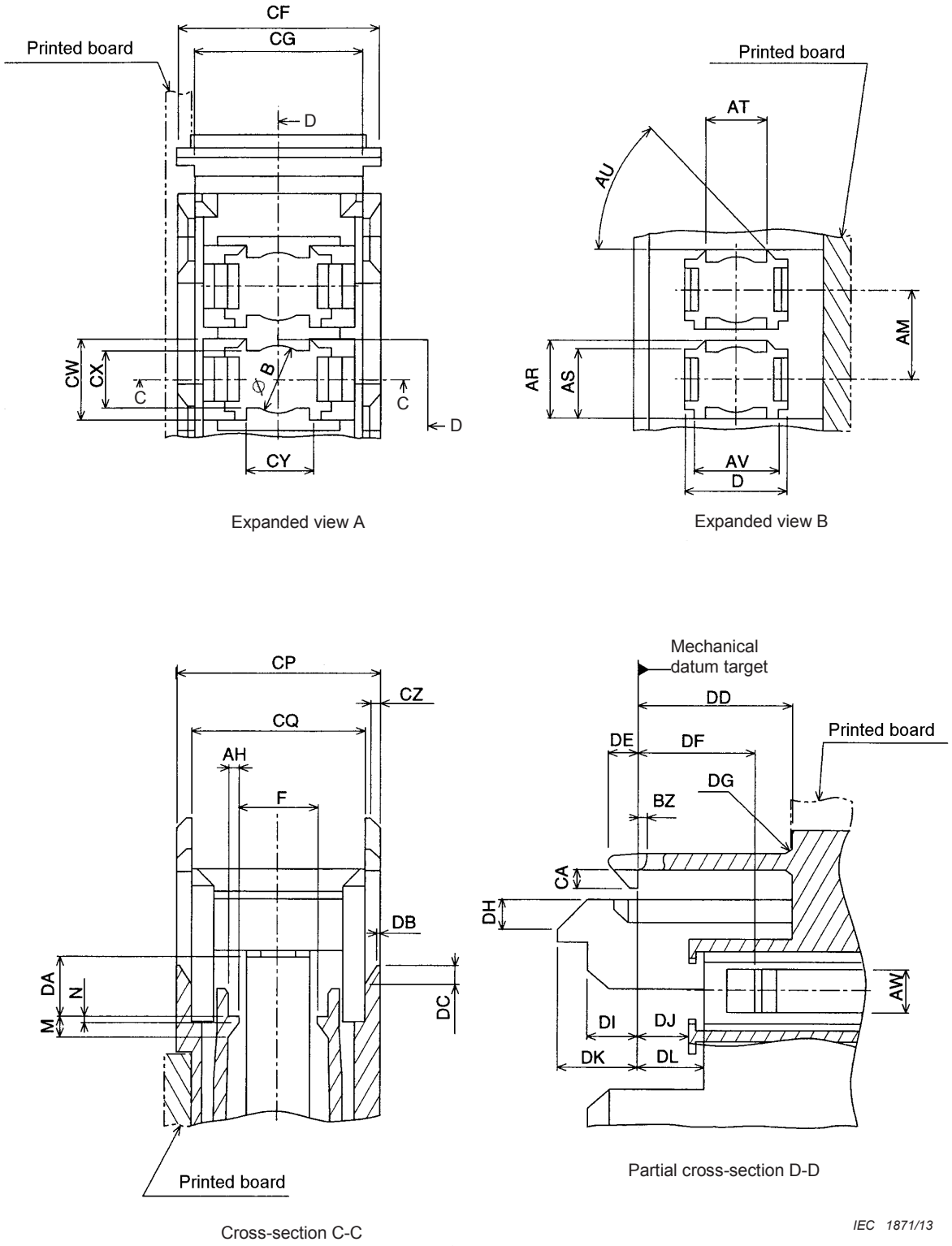


Figure 10 – 2-port printed board housing interface

Table 21 – Dimensions of the 2-port printed board housing interface

Reference	Dimensions		Remarks
	Minimum	Maximum	
B	3,07 mm	3,15 mm	Diameter [a]
D	5 mm	5,15 mm	
F	2,9 mm	3,5 mm	[b]
M	–	1,4 mm	
N	–	0,6 mm	
AH	0,4 mm	0,55 mm	
AM	4,45 mm	4,55 mm	
AR	4 mm	4,1 mm	
AS	3,25 mm	3,35 mm	
AT	2,3 mm	2,6 mm	
AU	42°	48°	Angle
AV	4,7 mm	4,75 mm	
AW	1,7 mm	2,3 mm	
BP	5,9 mm	6,1 mm	
BQ	4,75 mm	4,95 mm	
BR	11,5 mm	11,7 mm	
BS	13,8 mm	13,9 mm	
BT	16 mm	16,4 mm	[c]
BZ	0,3 mm	0,4 mm	
CA	0,73 mm	0,83 mm	
CF	9,8 mm	9,9 mm	
CG	7,8 mm	8 mm	
CP	9,82 mm	9,9 mm	
CQ	8,01 mm	8,09 mm	
CV	9,2 mm	9,4 mm	
CW	3,95 mm	4,15 mm	
CX	2,75 mm	2,95 mm	
CY	2,9 mm	3,1 mm	
CZ	0,6 mm	0,7 mm	45° chamfer
DA	2,89 mm	2,99 mm	
DB	0,2 mm	0,3 mm	
DC	1 mm	1,1 mm	
DD	9,2 mm	9,6 mm	
DE	1,35 mm	1,45 mm	
DF	5,75 mm	5,85 mm	
DG	–	1 mm	Radius
DH	1,45 mm	1,55 mm	45° chamfer
DI	1,8 mm	2,1 mm	
DJ	2,35 mm	2,45 mm	
DK	3,84 mm	3,94 mm	
DL	3,37 mm	3,43 mm	

[a] The dimension B shall become greater than 3,55 mm when a sleeve holder is inserted into or removed from the printed board housing.

[b] The dimension F shall become greater than 4,5 mm when a plug is coupled to or removed from the printed board housing.

[c] The dimension BT is defined at the top of the main latch springs. The dimension shall be greater than 16,3 mm at the base of the springs. The dimension BT at the top of the springs shall become greater than 18,5 mm when the printed board housing is coupled to or removed from a backplane housing.

Figure 11 is an example of the 8-port backplane housing interface. Table 22 gives dimensions of the 8-port backplane housing interface and Table 23 gives the grade of the 8-port backplane housing interface.

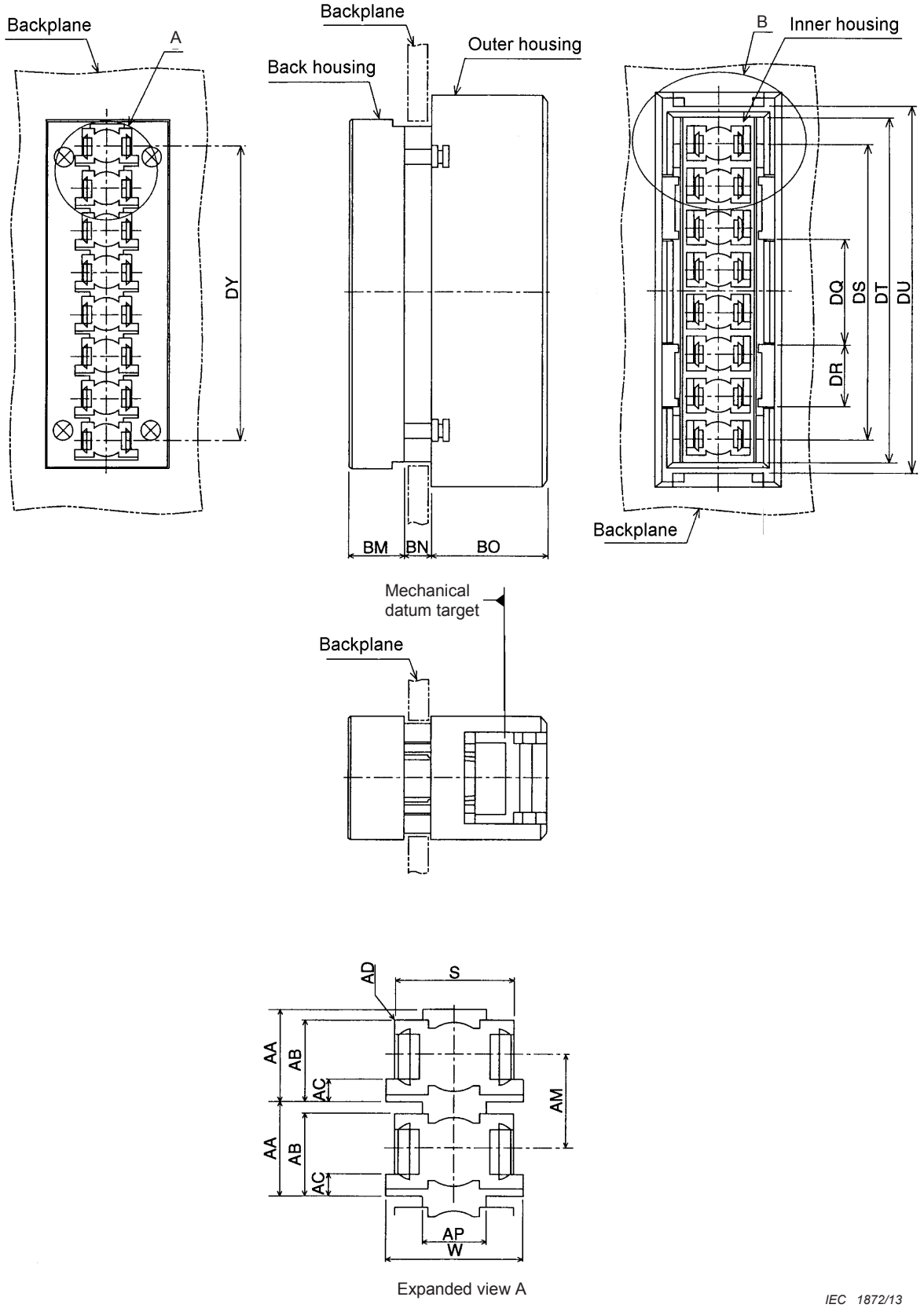
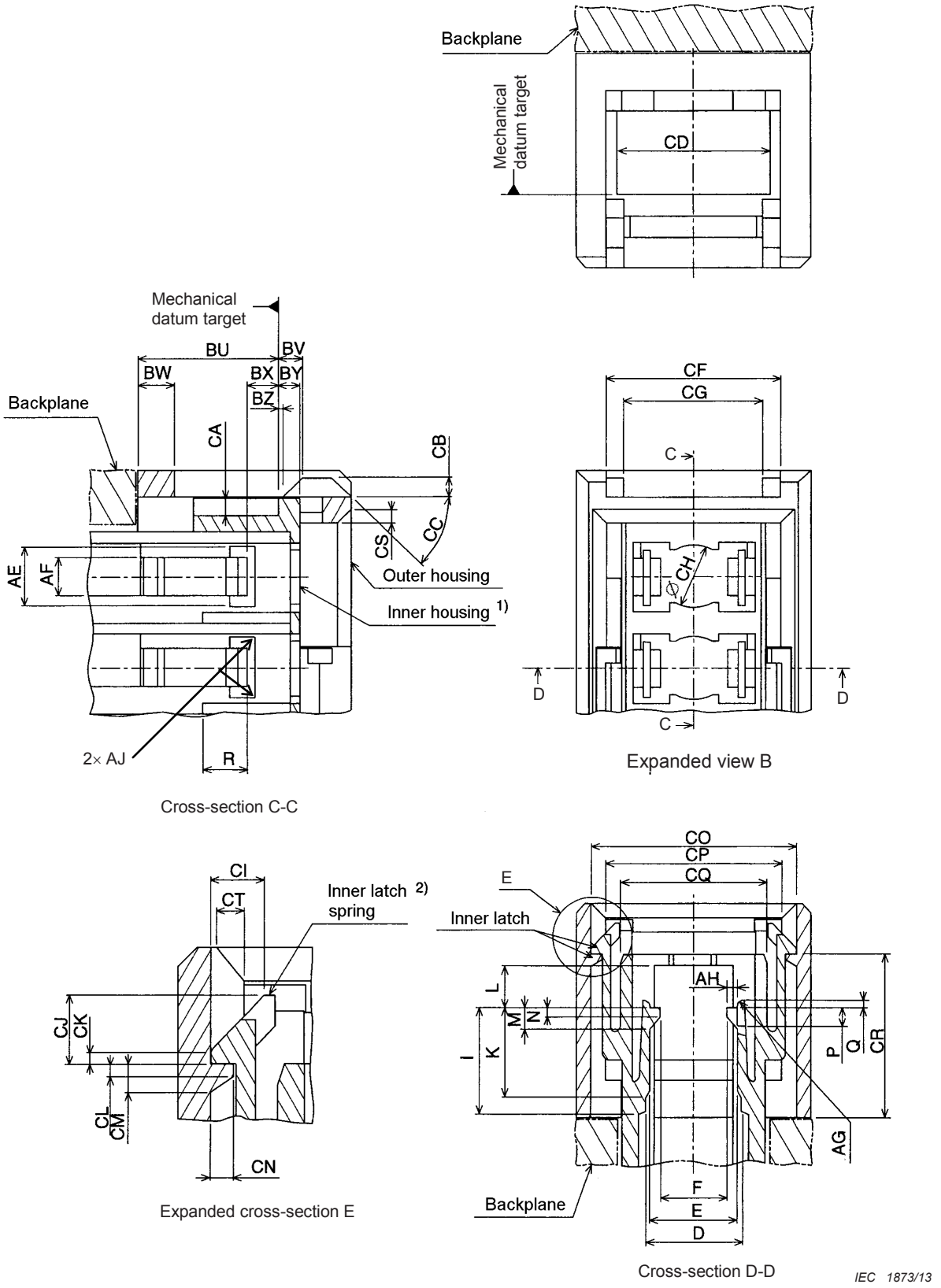


Figure 11 *(continued overleaf)*



NOTE 1 In the cross-section C-C figure, the inner housing should be movable to the right by at least 0,9 mm, and to the left by at least 2 mm when the inner latch is released.

NOTE 2 In the expanded cross-section I figure, the inner latch spring should move by more than 0,65 mm to the right when the inner latch is released or latched.

Figure 11 – 8-port backplane housing interface

Table 22 – Dimensions of the 8-port backplane housing interface *(1 of 2)*

Reference	Dimensions		Remarks
	Minimum	Maximum	
D	4,8 mm	5 mm	
E	4,55 mm	–	
F	2,9 mm	3,5 mm	[a]
I	–	6,5 mm	
K	–	5,4 mm	
L	2,6 mm	2,7 mm	
M	–	1,4 mm	
N	–	0,6 mm	
P	–	1,2 mm	
Q	–	0,4 mm	
R	–	2,55 mm	
S	5,65 mm	5,75 mm	
W	6,7 mm	–	
AA	4,45 mm	4,55 mm	
AB	4,01 mm	4,11 mm	
AC	0,95 mm	1,15 mm	
AD	–	0,2 mm	Radius
AE	2,8 mm	2,95 mm	
AF	1,9 mm	2,1 mm	
AG	0,3 mm	–	Radius
AH	0,4 mm	0,55 mm	
AJ	–	0,3 mm	Radius
AM	4,45 mm	4,55 mm	
AP	3,8 mm	4 mm	
BM			See Table 23
BN			See Table 23
BO	12,25 mm	12,35 mm	
BU	7,72 mm	7,78 mm	[b]
BV	1,1 mm	1,4 mm	[b]
BW	2,2 mm	2,6 mm	
BX	1,95 mm	2,05 mm	
BY	1,15 mm	1,25 mm	
BZ	0,3 mm	0,4 mm	[b]
CA	0,725 mm	0,925 mm	
CB	0,9 mm	1,1 mm	
CC	35°	50°	Angle
CD	8,1 mm	9,1 mm	
CF	10,05 mm	10,35 mm	
CG	8,1 mm	8,3 mm	
CH	3,4 mm	3,6 mm	
CI	1,17 mm	1,27 mm	
CJ	1,7 mm	2,3 mm	
CK	0,2 mm	0,3 mm	
CL	0,3 mm	0,4 mm	
CM	0,8 mm	1 mm	
CN	0,55 mm	0,65 mm	
CO	11,55 mm	11,65 mm	
CP	9,95 mm	10,03 mm	
CQ	7,92 mm	8 mm	
CR	9,37 mm	9,43 mm	
CS	0,55 mm	0,65 mm	45° chamfer
CT	0,55 mm	0,65 mm	45° chamfer

Table 22 (*2 of 2*)

Reference	Dimensions		Remarks
	Minimum	Maximum	
DQ	10,3 mm	10,7 mm	
DR	6,9 mm	7 mm	
DS	–	31,9 mm	
DT	36,55 mm	36,65 mm	
DU	38,8 mm	38,9 mm	
DY	31,4 mm	31,6 mm	

[a] The dimension F shall become greater than 4,5 mm when a plug is coupled to or removed from the backplane housing.

[b] These dimensions are given when the inner housing is moved in its most left-side position under the condition that the inner latch is completed.

Table 23 – Grade

Grade	Reference	Dimensions mm		Remarks
		Minimum	Maximum	
1	BM BN	6 2,65	6,2 2,75	Backplane thickness 2,4 mm
2	BM BN	6 3,45	6,2 3,55	Backplane thickness 3,2 mm

Figure 12 is an example of the 8-port printed board housing interface. Table 24 gives dimensions of the 8-port printed board housing interface.

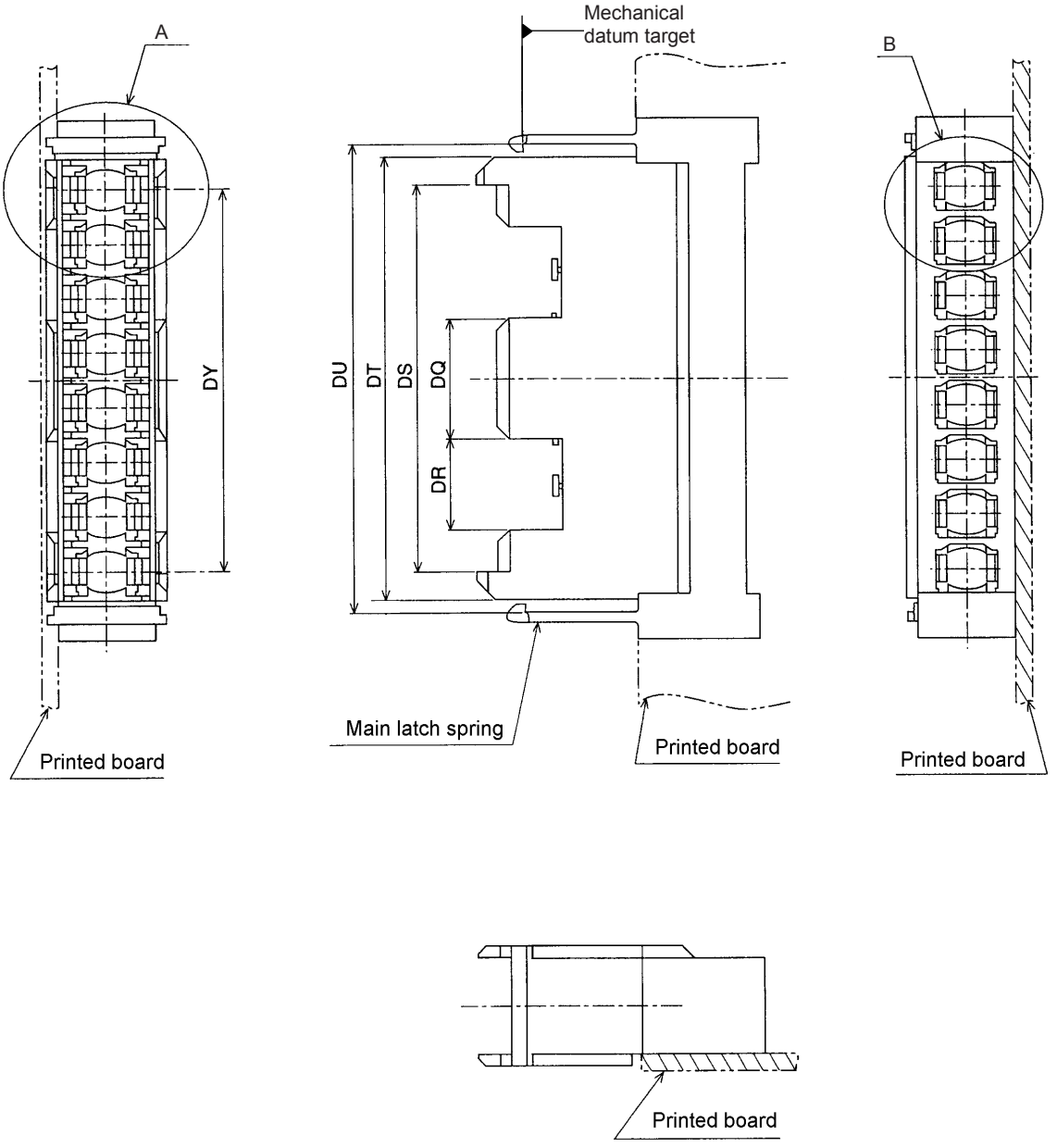
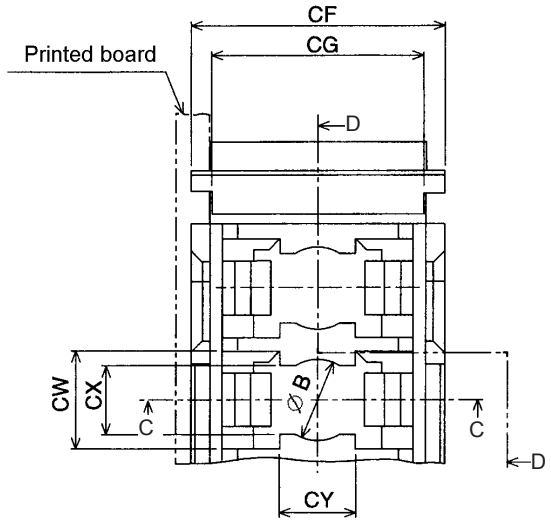
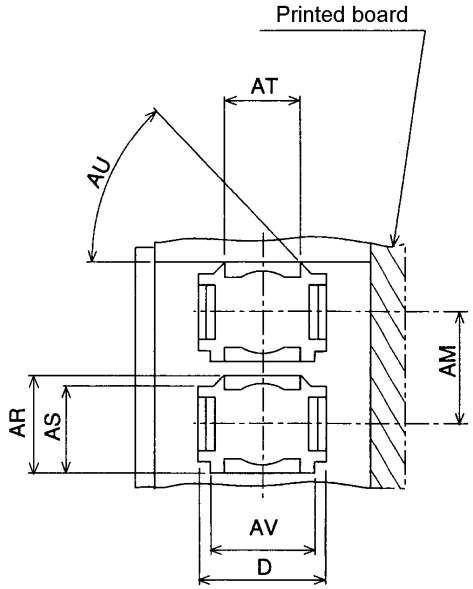


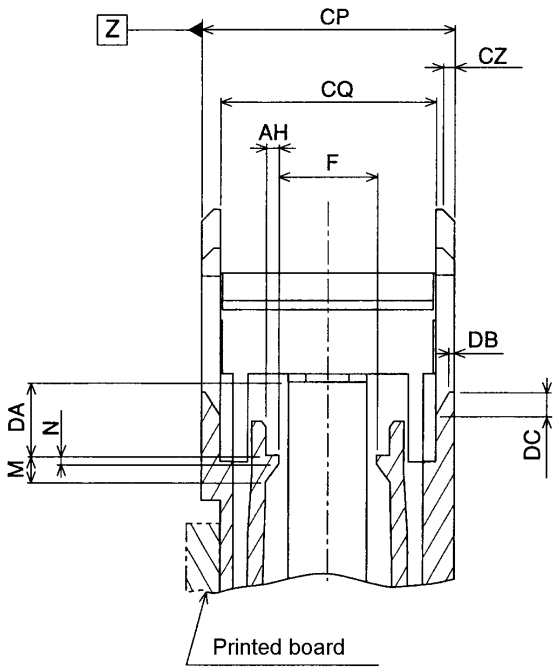
Figure 12 *(continued overleaf)*



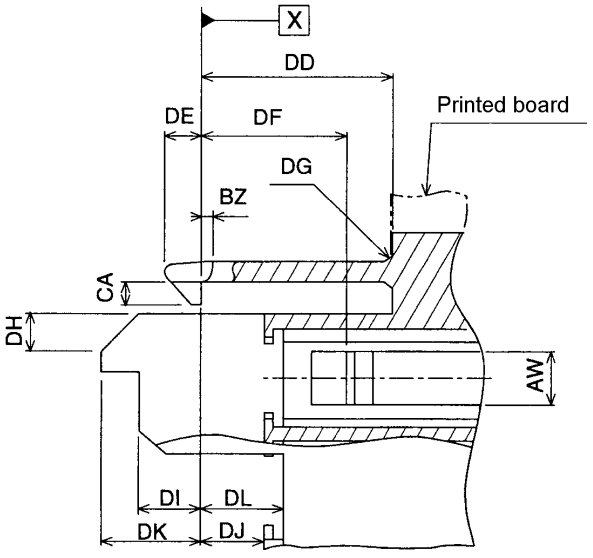
Expanded view A



Expanded view B



Cross-section C-C



Partial cross-section D-D

IEC 1875/13

Figure 12 – 8-port printed board housing interface

Table 24 – Dimensions of the 8-port printed board housing interface

Reference	Dimensions		Remarks
	Minimum	Maximum	
B	3,07 mm	3,15 mm	[a]
D	5 mm	5,15 mm	
F	2,9 mm	3,5 mm	[b]
M	–	1,4 mm	
N	–	0,6 mm	
AH	0,4 mm	0,55 mm	
AJ	–	0,3 mm	Radius
AM	4,45 mm	4,55 mm	
AR	4 mm	4,1 mm	
AS	3,25 mm	3,35 mm	
AT	2,3 mm	2,6 mm	
AU	42°	48°	
AV	4,7 mm	4,75 mm	
AW	1,7 mm	2,3 mm	
BZ	0,3 mm	0,4 mm	
CA	0,73 mm	0,83 mm	
CF	9,8 mm	9,9 mm	
CG	7,8 mm	8 mm	
CP	9,82 mm	9,9 mm	
CQ	8,01 mm	8,09 mm	
CW	3,95 mm	4,15 mm	
CX	2,75 mm	2,95 mm	
CY	2,9 mm	3,1 mm	
CZ	0,6 mm	0,7 mm	45° chamfer
DA	2,89 mm	2,99 mm	
DB	0,2 mm	0,3 mm	
DC	1 mm	1,1 mm	
DD	9,2 mm	9,6 mm	
DE	1,35 mm	1,45 mm	
DF	5,75 mm	5,85 mm	
DG	–	1 mm	Radius
DH	1,45 mm	1,55 mm	45° chamfer
DI	1,8 mm	2,1 mm	
DJ	2,35 mm	2,45 mm	
DK	3,84 mm	3,94 mm	
DL	3,37 mm	3,43 mm	
DQ	9,9 mm	10 mm	
DR	7,5 mm	7,6 mm	
DS	31,9 mm	32,1 mm	
DT	36,4 mm	36,5 mm	
DU	38,6 mm	39 mm	[c]
DY	31,4 mm	31,6 mm	

[a] The dimension B shall become greater than 3,55 mm when a sleeve holder is inserted into or removed from the printed board housing.

[b] The dimension F shall become greater than 4,5 mm when a plug is coupled to or removed from the printed board housing.

[c] The dimension DU is defined at the top of the main latch springs. The dimension shall be greater than 38,9 mm at the base of the springs. The dimension DU at the top of the springs shall become greater than 41,1 mm when the printed board housing is coupled to or removed from a backplane housing.

Figure 13 is an example of the simplex active device receptacle interface. Table 25 gives dimensions of the simplex active device receptacle interface and Table 26 gives alignment feature of the simplex active device receptacle interface.

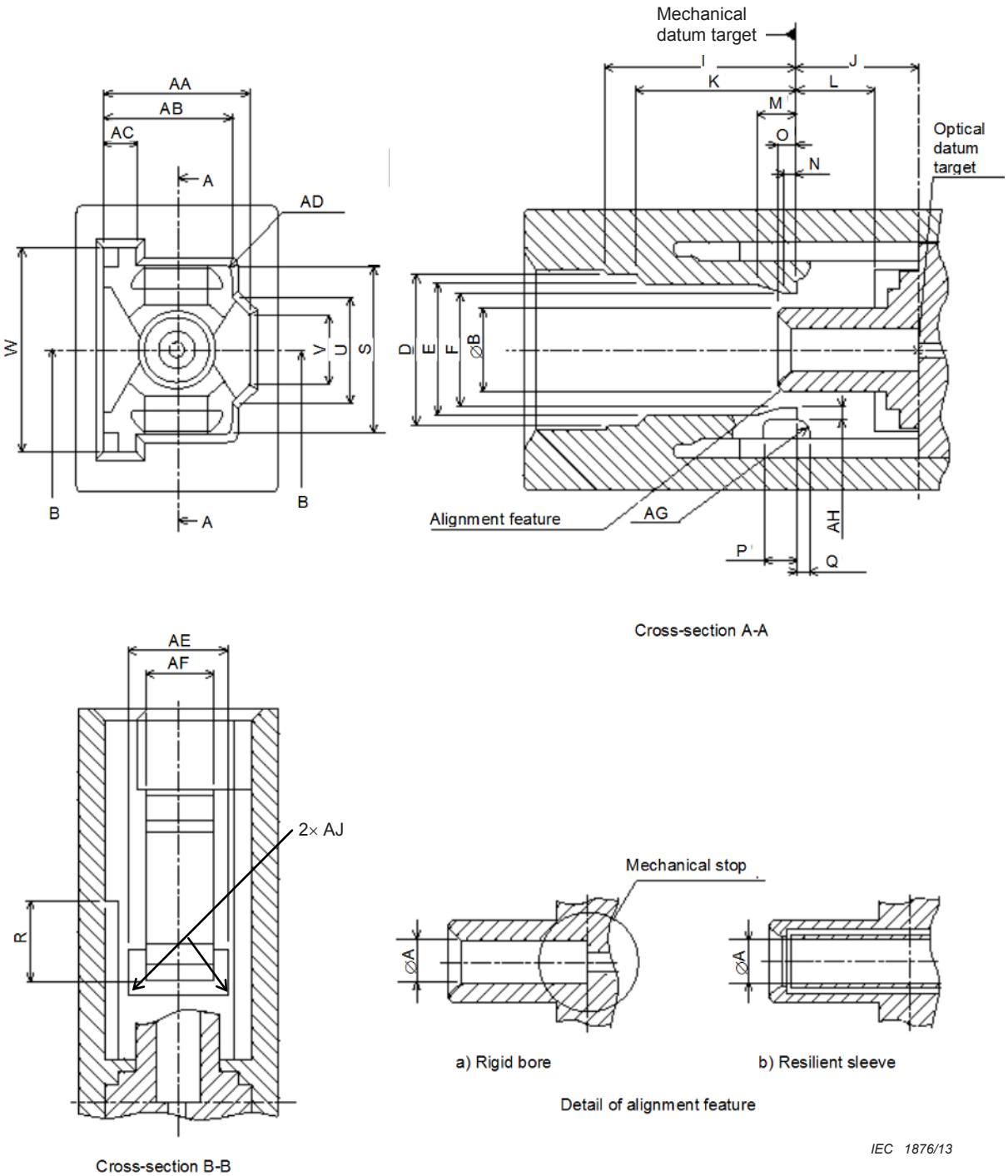


Figure 13 – Simplex active device receptacle interface

Table 25 – Dimensions of the simplex active device receptacle interface

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
A			See Table 26
B	2,29	2,59	
D	4,8	5	
E	4,55	–	
F	2,9	3,5	[a]
I	–	6,5	
J	3,9	4,1	[b]
K	–	5,4	
L	2,55	2,7	
M	–	1,4	
N	–	0,55	
O	–	0,6	
P	–	1,2	
Q	–	0,4	
R	–	2,55	
S	5,65	5,75	
U	3,8	4	
V	3,3	–	
W	6,7	–	
AA	4,45	4,55	
AB	4,01	4,11	
AC	0,95	1,15	
AD	–	0,2	Radius
AE	2,8	2,95	
AF	1,9	2,1	
AG	0,3	–	Radius
AH	0,4	0,55	
AJ	–	0,3	Radius

[a] Dimension F should become greater than 4,5 mm when a plug is coupled to or removed from the receptacle.

[b] A mechanical stop feature may be required in order to bring the fibre tip to the optical datum target. An example of a mechanical stop feature is shown in Figure 14.

Table 26 – Alignment feature grade

Grade	Dimensions mm		Remarks
	Minimum	Maximum	
1	1,251	1,252	[a] and [b]
2	1,251	1,254	[a] and [b]
3	1,251	1,275	[a] and [b]
4			[b] and [c]

[a] Where the connector alignment feature is a rigid bore, as shown in Figure 13, it is equipped with a mechanical stop. The detail of the mechanical stop feature is shown in Figure 14.

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

[c] Where the connector alignment feature is a resilient sleeve, as shown in Figure 13, it is not equipped with a mechanical stop. The optical datum target of the plug connector is not limited by the alignment feature. The alignment feature should accept a gauge pin to the centre of the receptacle with a force of 1 N to 2,5 N. The centre of the receptacle is defined by the right side position of dimension J. The gauge pin is shown in Figure 4 and Table 10.

Figure 14 is an example of the detail of the mechanical stop for rigid bore alignment feature. Table 27 gives dimensions of the mechanical stop for rigid bore alignment feature and Table 28 gives dimensions of the mechanical stop feature grade.

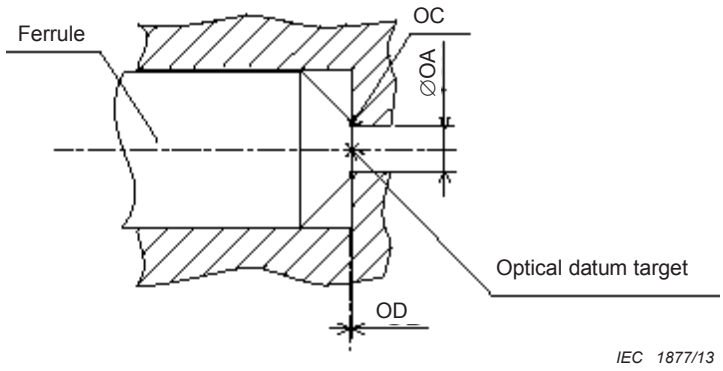


Figure 14 – Detail of the mechanical stop for rigid bore alignment feature

Table 27 – Dimensions of the mechanical stop for rigid bore alignment feature

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
OA	0	0,05	[a] and see Table 28
OC			Radius
OD			[a] and see Table 28

[a] Whatever form of mechanical stop feature is incorporated into the receptacle, it shall be capable of maintaining the optical datum target of both the fibre and the receptacle within the clearances specified in Table 28 depending upon the application.

Table 28 – Mechanical stop feature grade

Grade	Dimensions mm		Dimensions µm	Remarks
	OA minimum	OA maximum	OD clearance	
A	0,3	0,4	± 5	
N	0,3	1,251	–	

Figure 15 is an example of the 4,5 mm duplex active device receptacle interface. Table 29 gives dimensions of the 4,5 mm duplex active device receptacle interface and Table 30 gives alignment feature of the 4,5 mm duplex active device receptacle interface.

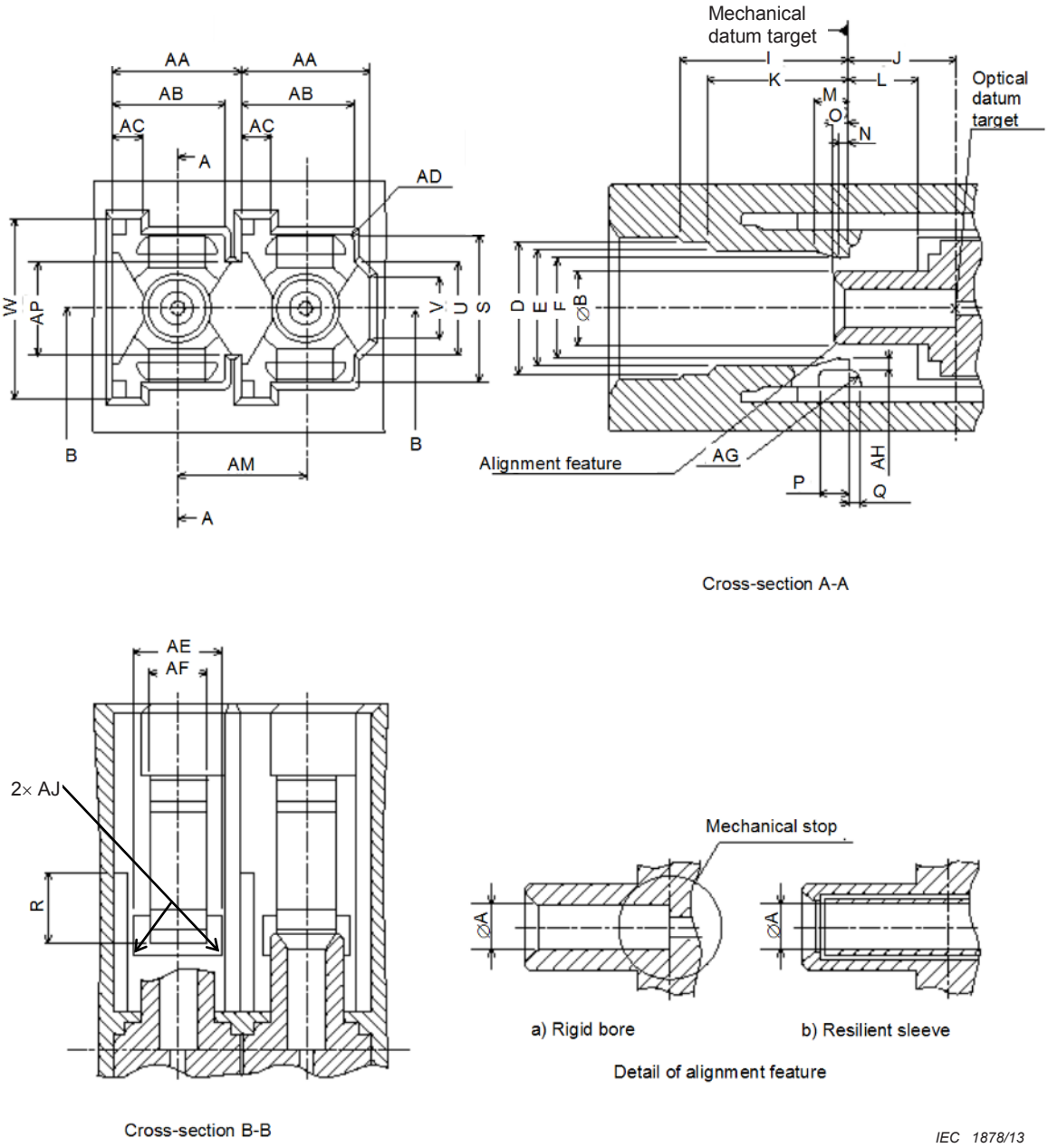


Figure 15 – 4,5 mm duplex active device receptacle interface

Table 29 – Dimensions of the 4,5 mm duplex active device receptacle interface

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
A			See Table 30
B	2,29	2,59	
D	4,8	5	
E	4,55	–	
F	2,9	3,5	[a]
I	–	6,5	
J	3,9	4,1	[b]
K	–	5,4	
L	2,55	2,7	
M	–	1,4	
N	–	0,55	
O	–	0,6	
P	–	1,2	
Q	–	0,4	
R	–	2,55	
S	5,65	5,75	
U	3,8	4	
V	3,3	–	
W	6,7	–	
AA	4,45	4,55	
AB	4,01	4,11	
AC	0,95	1,15	
AD	–	0,2	Radius
AE	2,8	2,95	
AF	1,9	2,1	
AG	0,3	–	Radius
AH	0,4	0,55	
AJ	–	0,3	Radius
AM	4,45	4,55	
AP	3,8	4,0	

[a] Dimension F should become greater than 4,5 mm when a plug is coupled to or removed from the receptacle.

[b] A mechanical stop feature may be required in order to bring the fibre tip to the optical datum target. An example of a mechanical stop feature is shown in Figure 16.

Table 30 – Alignment feature grade

Grade	Dimensions mm		Remarks
	Minimum	Maximum	
1	1,251	1,252	[a] and [b]
2	1,251	1,254	[a] and [b]
3	1,251	1,275	[a] and [b]
4			[b] and [c]

[a] Where the connector alignment feature is a rigid bore, as shown in Figure 15, it is equipped with a mechanical stop. The detail of the mechanical stop feature is shown in Figure 16.

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

[c] Where the connector alignment feature is a resilient sleeve, it is not equipped with a mechanical stop. The optical datum target of the plug connector is not limited by the alignment feature. The alignment feature should accept a gauge pin to the centre of the receptacle with a force of 1 N to 2,5 N. The centre of the receptacle is defined by the right side position of dimension J. The gauge pin is shown in Figure 4 and Table 10.

Figure 16 is an example of the mechanical stop for rigid bore alignment feature. Table 31 gives dimensions of the mechanical stop for rigid bore alignment feature and Table 32 gives dimensions of the mechanical stop feature grade.

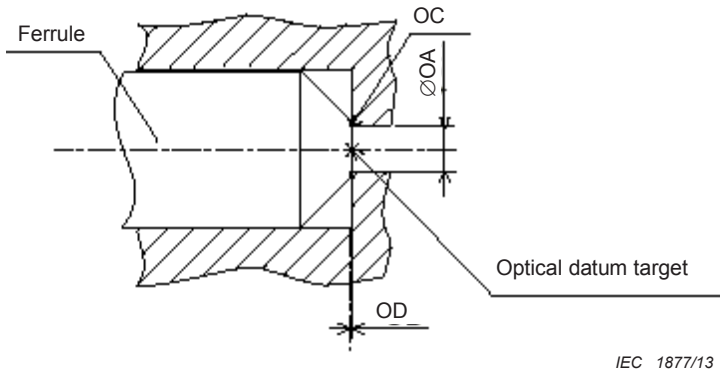


Figure 16 – Detail of the mechanical stop for rigid bore alignment feature

Table 31 – Dimensions of the mechanical stop for rigid bore alignment feature

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
OA	0	0,05	[a] and see Table 30
OC			Radius
OD			[a] and see Table 30

[a] Whatever form of mechanical stop feature is incorporated into the receptacle, it shall be capable of maintaining the optical datum target of both the fibre and the receptacle within the clearances specified in Table 32 depending on the application.

Table 32 – Mechanical stop feature grade

Grade	Dimensions mm		Dimensions μm	Remarks
	OA minimum	OA maximum	OD clearance	
A	0,3	0,4	± 5	[a]
N	0,3	1,251	–	[a]

[a] Add the grade number to the alignment feature grade number.

Figure 17 is an example of the 6,25 mm duplex active device receptacle interface. Table 33 gives dimensions of the 6,25 mm duplex active device receptacle interface and Table 34 gives alignment feature of the 6,25 mm duplex active device receptacle interface.

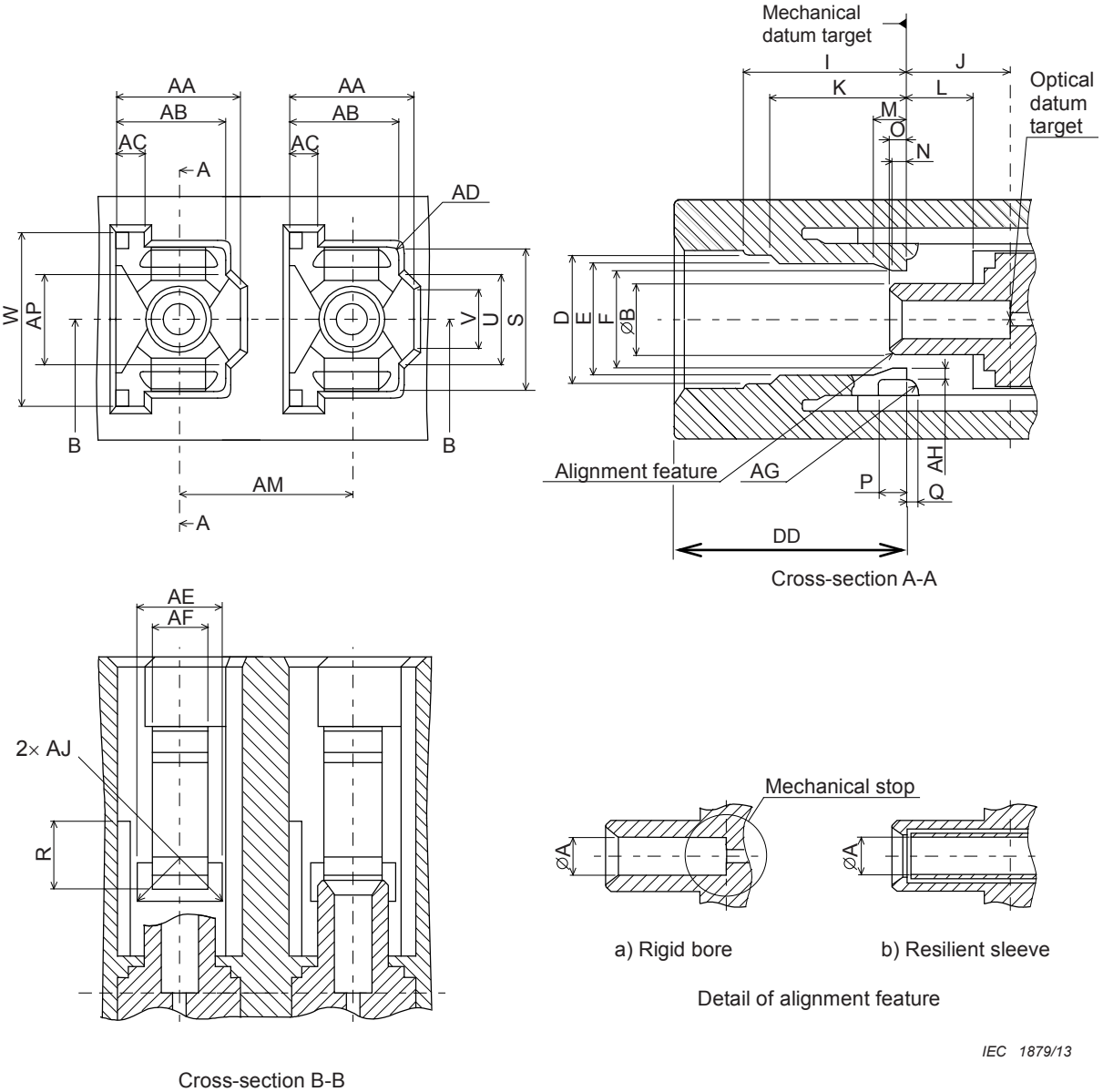


Figure 17 – 6,25 mm duplex active device receptacle interface

Table 33 – Dimensions of the 6,25 mm duplex active device receptacle interface

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
A			See Table 34
B	2,29	2,59	
D	4,8	5	
E	4,55	–	
F	2,9	3,5	[a]
I	–	6,5	
J	3,9	4,1	[b]
K	–	5,4	
L	2,55	2,7	
M	–	1,4	
N	–	0,55	
O	–	0,6	
P	–	1,2	
Q	–	0,4	
R	–	2,55	
S	5,65	5,75	
U	3,8	4	
V	3,3	–	
W	6,7	–	
AA	4,45	4,55	
AB	4,01	4,11	
AC	0,95	1,15	
AD	–	0,2	Radius
AE	2,8	2,95	
AF	1,9	2,1	
AG	0,3	–	Radius
AH	0,4	0,55	
AJ	–	0,3	Radius
AM	6,20	6,30	
AP	3,8	4,0	
DD	8,77	9,23	

[a] Dimension F should become greater than 4,5 mm when a plug is coupled to or removed from the receptacle.

[b] A mechanical stop feature may be required in order to bring the fibre tip to the optical datum target. An example of a mechanical stop feature is shown in Figure 18.

Table 34 – Alignment feature grade

Grade	Dimensions mm		Remarks
	Minimum	Maximum	
1	1,251	1,252	[a] and [b]
2	1,251	1,254	[a] and [b]
3	1,251	1,275	[a] and [b]
4			[b] and [c]

[a] Where the connector alignment feature is a rigid bore, as shown in Figure 17, it is equipped with a mechanical stop. The detail of the mechanical stop feature is shown in Figure 18.

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

[c] Where the connector alignment feature is a resilient sleeve, as shown in Figure 17, it is not equipped with a mechanical stop. The optical datum target of the plug connector is not limited by the alignment feature. The alignment feature should accept a gauge pin to the centre of the receptacle with a force of 1 N to 2,5 N. The centre of the receptacle is defined by the right side position of dimension J. The gauge pin is shown in Figure 4 and Table 10.

Figure 18 is an example of the mechanical stop for rigid bore alignment feature. Table 35 gives dimensions of the mechanical stop for rigid bore alignment feature and Table 36 gives dimensions of the mechanical stop feature grade.

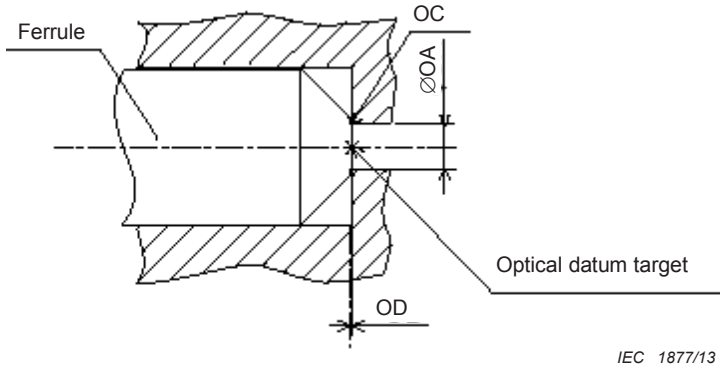


Figure 18 – Detail of the mechanical stop for rigid bore alignment feature

Table 35 – Dimensions of the mechanical stop for rigid bore alignment feature

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
OA	0	0,05	[a] and see Table 36
OC			Radius
OD			[a] and see Table 36

[a] Whatever form of mechanical stop feature is incorporated into the receptacle, it shall be capable of maintaining the optical datum target of both the fibre and the receptacle within the clearances specified in Table 36, depending on the application.

Table 36 – Mechanical stop feature grade

Grade	Dimensions mm		Dimensions μm	Notes
	OA minimum	OA maximum	OD clearance	
A	0,3	0,4	± 5	[a]
N	0,3	1,251	–	[a]
[a] Add the grade number to the alignment feature grade number.				

Figure 19 is an example of the plug connector interface for printed board housings, APC. Table 37 gives dimensions of the plug connector interface for printed board housings, APC.

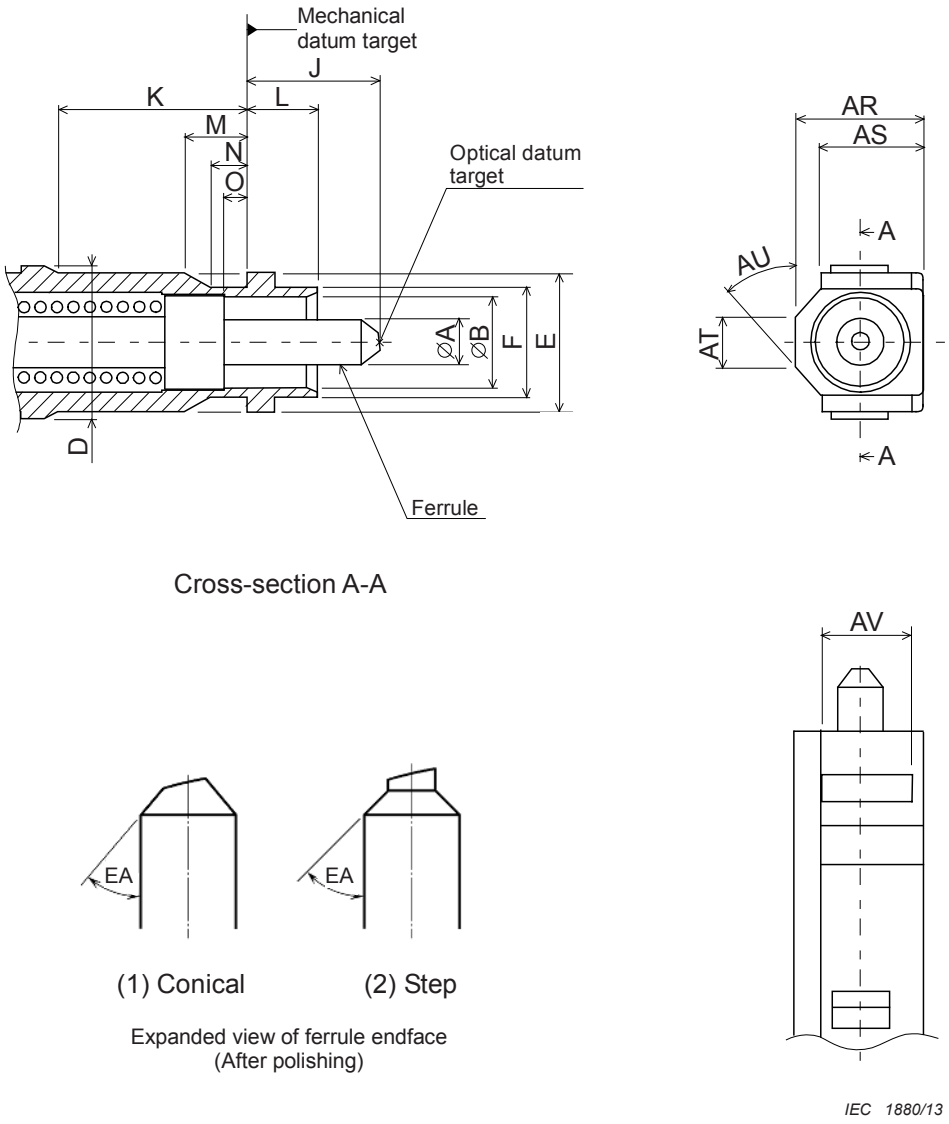
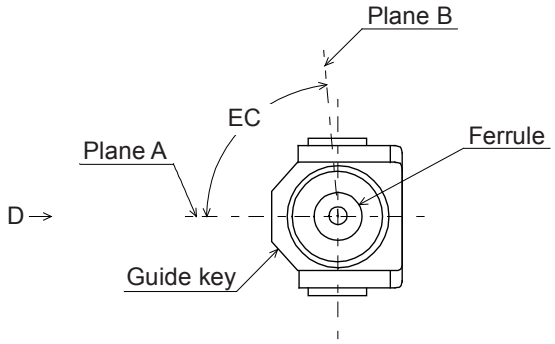
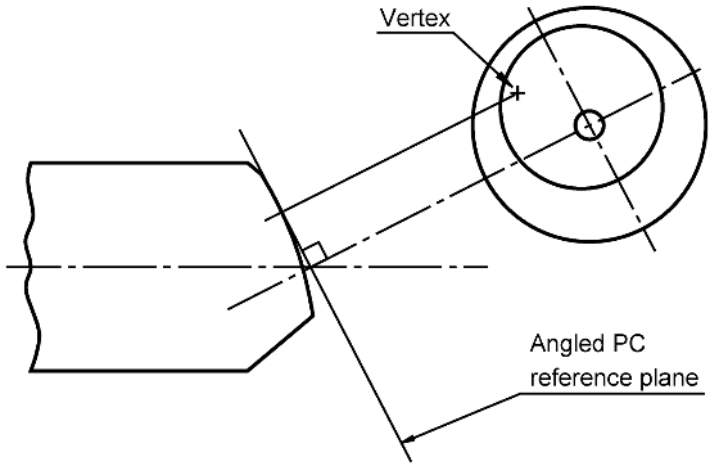


Figure 19 *(continued overleaf)*



Expanded view from C direction
(After polishing)



Ferrule endface geometry
(Expanded view from D direction, after polishing)

IEC 1881/13

Figure 19 – Plug connector interface for printed board housings, APC

Table 37 – Dimensions of the plug connector interface for printed board housings, APC

Reference	Dimensions			Remarks
	Minimum	Basic	Maximum	
A			1,2495 mm	[a]
B	2,6 mm		2,7 mm	
D	4,65 mm		4,75 mm	
E	4,3 mm		4,4 mm	
F	3,3 mm		3,4 mm	
J	4,2 mm		4,5 mm	[b]
K	5,5 mm		–	
L	2,4 mm		2,5 mm	
M	1,5 mm		–	
N	0,6 mm		–	
O	0,5 mm		–	
AR	3,65 mm		3.75 mm	
AS	2,9 mm		3.0 mm	
AT	1,7 mm		2,1 mm	
AU	43°		47°	Angle
AV	–		3,0 mm	
EA	32,5°		45°	Angle, [c]
EC	–	90°	–	Angle, [d]

[a] A chamfer or radius is allowed to maximum depth of 0,5 mm from the ferrule endface. Detail dimensions and the grade number of the ferrule is required in IEC 61755-3-2.

[b] The dimension J is given for the plug endface when not mated. It is noticed that the ferrule is movable by a certain axial compression force with direct contacting endfaces, and therefore the dimension J is given variable. Ferrule compression force shall be 5,5 N to 6,5 N when the position of the optical datum target from the mechanical datum target is moved in the range of 3,9 mm to 4,1 mm. In addition, the dimension J shall become less than 3,25 mm with a relatively large axial compression force.

[c] 40° to 45° are desirable to minimize debris for backplane connectors.

[d] Dimension EC is defined as an angle between two planes: one plane, plane A, passes through the axis of the ferrule and 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 normal to the APC reference plane.

Figure 20 is an example of the simplex plug connector interface – Push/pull, APC. Table 38 gives dimensions of the simplex plug connector interface – Push/pull, APC.

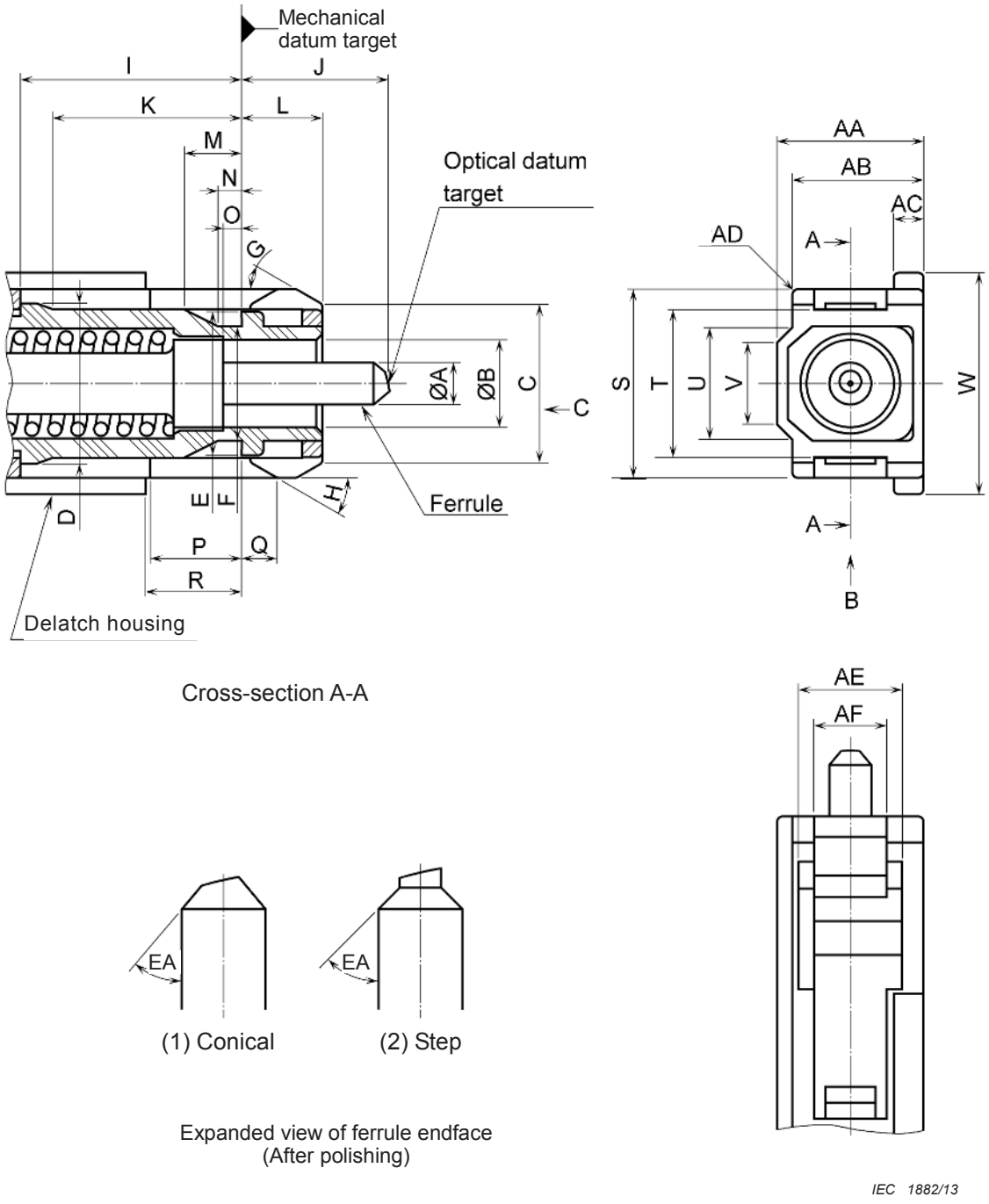
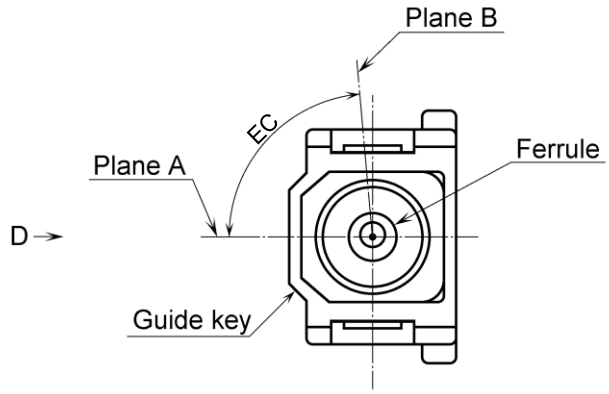
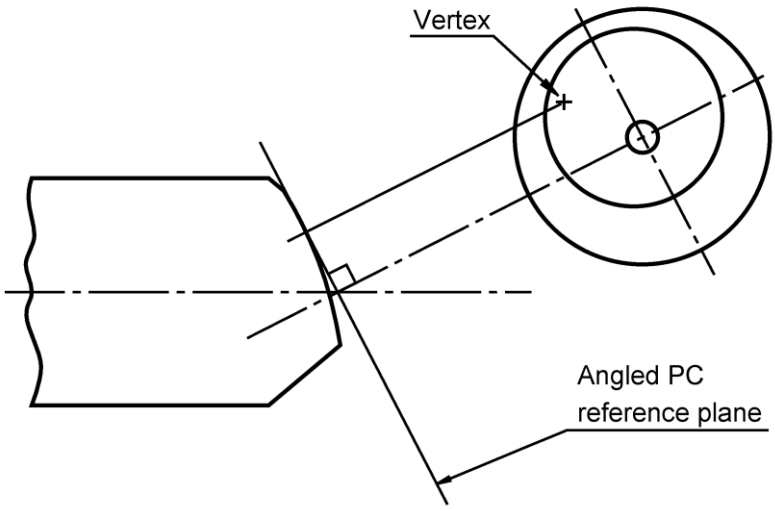


Figure 20 *(continued overleaf)*



Expanded view from C direction
(After polishing)



Ferrule endface geometry
(Expanded view from D direction, after polishing)

IEC 1883/13

Figure 20 – Simplex plug connector interface – Push/pull, APC

Table 38 – Dimensions of the simplex plug connector interfaces, APC

Reference	Dimensions			Remarks
	Minimum	Basic	Maximum	
A			1,249 5 mm	[a]
B	2,6 mm		2,7 mm	
C	4,6 mm		4,8 mm	
D	4,65 mm		4,75 mm	
E	4,3 mm		4,4 mm	
F	3,3 mm		3,4 mm	
G	25°		35°	Angle
H	25°		35°	Angle
I	6,55 mm		–	[b]
J	4,2 mm		4,5 mm	[c]
K	5,5 mm		–	
L	2,4 mm		2,5 mm	
M	1,5 mm		–	
N	0,6 mm		–	
O	0,5 mm		–	
P	2,6 mm		–	[b]
Q	1 mm		1,1 mm	[b] and [c]
R	2,65 mm		2,9 mm	[b]
S	5,5 mm		5,6 mm	
T	4,3 mm		4,5 mm	
U	–		3,7 mm	
V	–		2,4 mm	
W	6,5 mm		6,6 mm	
AA	4,3 mm		4,4 mm	
AB	3,85 mm		3,95 mm	
AC	0,7 mm		0,9 mm	
AD	0,2 mm		–	Radius
AE	3 mm		–	
AF	2,2 mm		2,3 mm	
EA	32,5°		45°	Angle, [e]
EC	–	90°	–	Angle, [f]

[a] A chamfer or radius is allowed to maximum depth of 0,5 mm from the ferrule endface. Detail dimensions and the grade number of the ferrule is required in IEC 61755-3-2.

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

[c] The dimension J is given for the plug endface when not mated. It is noticed that the ferrule is movable by a certain axial compression force with direct contacting endfaces, and therefore the dimension J is given variable. Ferrule compression force shall be 5,5 N to 6,5 N when the position of the optical datum target from the mechanical datum target is moved in the range of 3,9 mm to 4,1 mm. In addition, the dimension J shall become less than 3,25 mm with a relatively large axial compression force.

[d] The right-side position of Q shall become the left-side position to the plane defined by the mechanical datum target when the coupling sleeve is moved to its most left-direction position.

[e] 40° to 45° are desirable to minimize debris for backplane connectors.

[f] Dimension EA is defined as an angle between two planes: one plane, plane A, passes through the axis of the ferrule and 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 normal to the APC reference plane.

Figure 21 is an example of the 4,5 mm duplex plug connector interface – Push/pull, APC. Table 39 gives dimensions of the 4,5 mm duplex plug connector interface – Push/pull, APC.

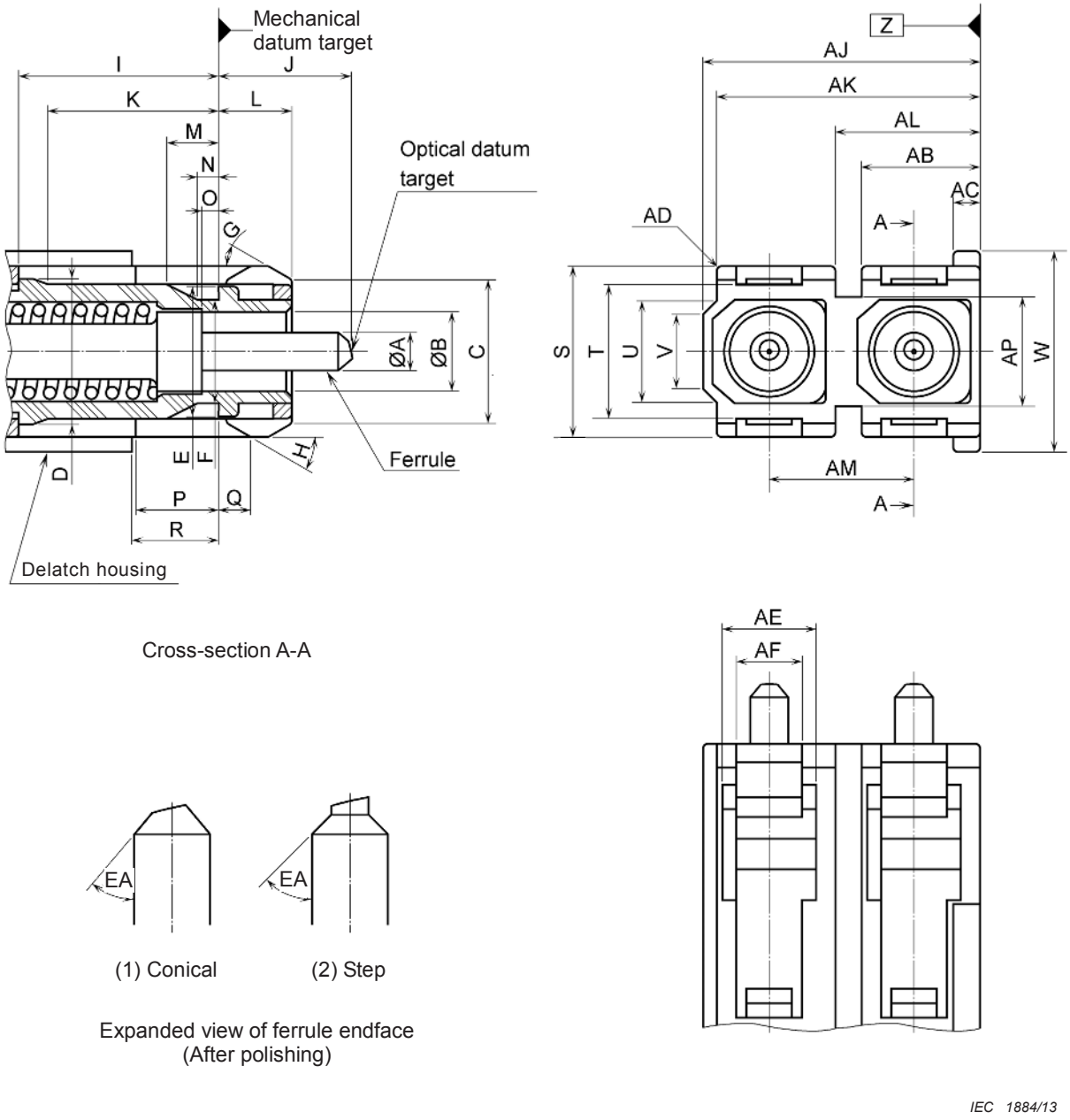
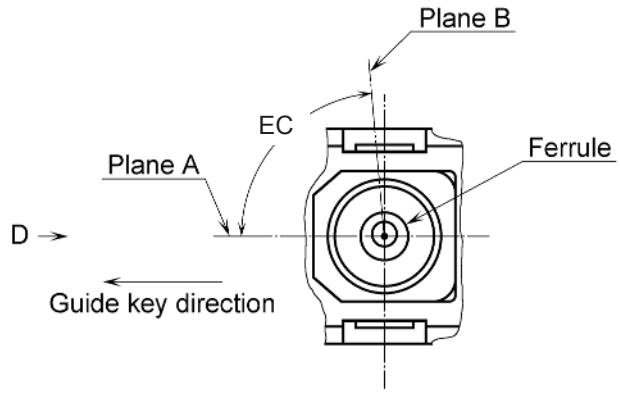
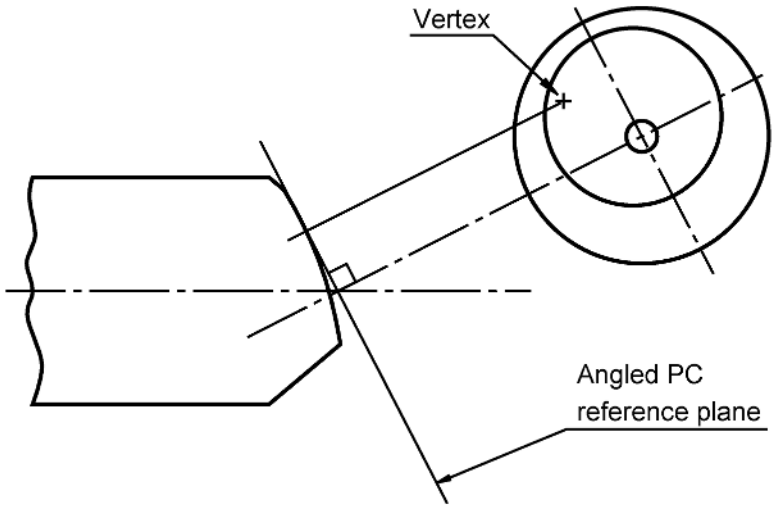


Figure 21 *(continued overleaf)*



Expanded view from C direction
(After polishing)



Ferrule endface geometry
(Expanded view from D direction, after polishing)

IEC 1885/13

Figure 21 – 4,5 mm duplex plug connector interface – Push/pull, APC

Table 39 – Dimensions of the 4,5 mm duplex plug connector interfaces, APC

Reference	Dimensions			Remarks
	Minimum	Basic	Maximum	
A			1,249 5 mm	Diameter, [a]
B	2,6 mm		2,7 mm	
C	4,6 mm		4,8 mm	
D	4,65 mm		4,75 mm	
E	4,3 mm		4,4 mm	
F	3,3 mm		3,4 mm	
G	25°		35°	Angle
H	25°		35°	Angle
I	6,55 mm		–	[b]
J	4,2 mm		4,5 mm	[c]
K	5,5 mm		–	
L	2,4 mm		2,5 mm	
M	1,5 mm		–	
N	0,6 mm		–	
O	0,5 mm		–	
P	2,6 mm		–	[b]
Q	1 mm		1,1 mm	[b] and [d]
R	2,65 mm		2,9 mm	[b]
S	5,5 mm		5,6 mm	
T	4,3 mm		4,5 mm	
U	–		3,7 mm	
V	–		2,4 mm	
W	6,5 mm		6,6 mm	
AB	3,7 mm		3,85 mm	
AC	0,7 mm		0,9 mm	
AD	0,2 mm		–	Radius
AE	3 mm		–	
AF	2,2 mm		2,3 mm	
AJ	8,8 mm		8,9 mm	
AK	8,35 mm		8,45 mm	
AL	4,55 mm		4,7 mm	
AM	4,45 mm		4,55 mm	
AP	–		3,7 mm	
EA	32,5°		45°	[e]
EC	–	90°	–	[f]

[a] A chamfer or radius is allowed to a maximum depth of 0,5 mm from the ferrule endface. Detail dimensions and the grade number of the ferrule is required in IEC 61755-3-2.

[b] The coupling sleeve must be movable toward the right and the left directions. These dimensions are given when the coupling sleeve is moved in its most right-direction position..

[c] The dimension J is given for the plug endface when not mated. It is noticed that the ferrule is movable by a certain axial compression force with direct contacting endfaces, and therefore the dimension J is given variable. Ferrule compression force shall be 5,5 N to 6,5 N when the position of the optical datum target from the mechanical datum target is moved in the range of 3,9 mm to 4,1 mm. In addition, the dimension J shall become less than 3,25 mm with a relatively large axial compression force.

[d] The right-side position of Q shall become the left-side position to the plane defined by the mechanical datum target when the coupling sleeve is moved to its most left-direction position.

[e] 40° to 45° are desirable to minimize debris for backplane connectors.

[f] Dimension EC is defined as an angle between two planes: one plane, plane A, passes through the axis of the ferrule and 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 normal to the APC reference plane.

Figure 22 is an example of the 6,25 mm duplex plug connector interface – Push/pull, APC. Table 40 gives dimensions of the 6,25 mm duplex plug connector interface – Push/pull, APC.

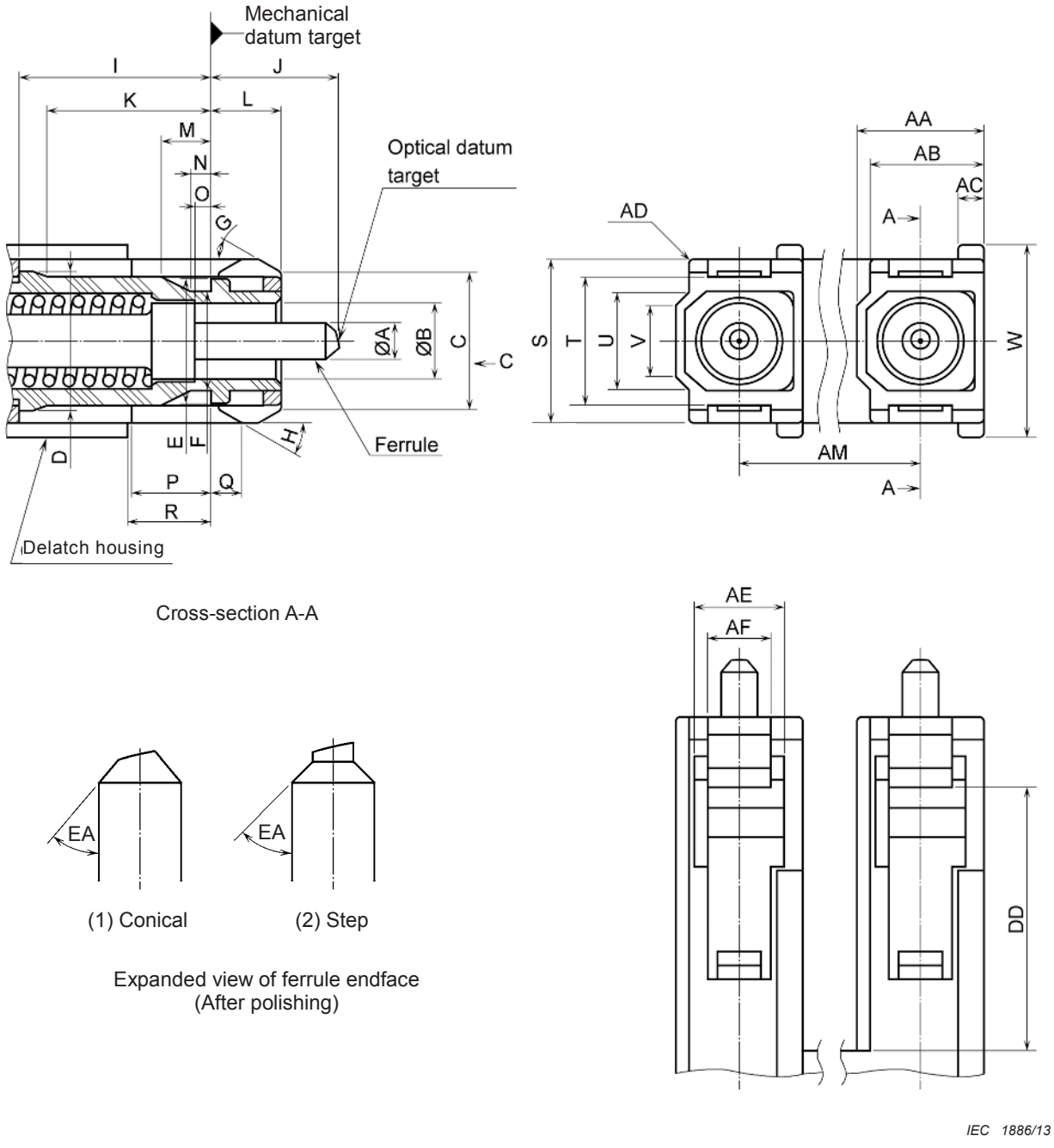
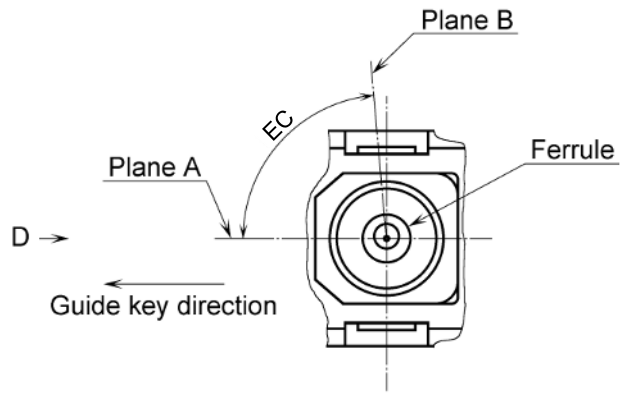
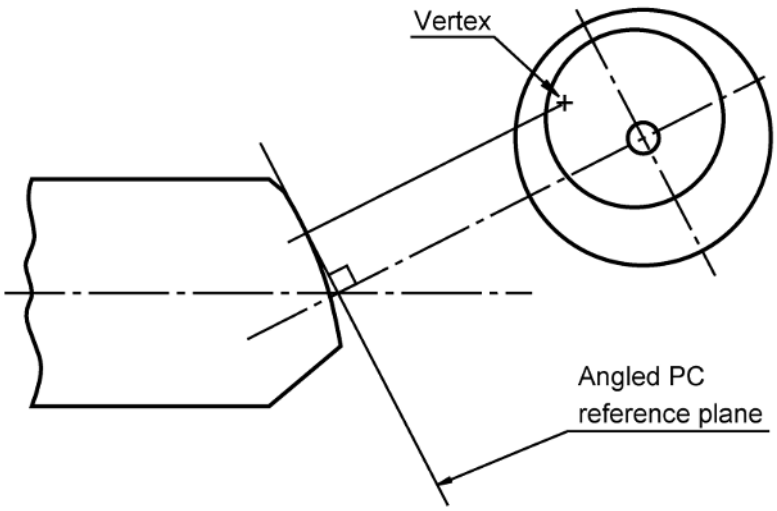


Figure 22 *(continued overleaf)*



Expanded view from C direction
(After polishing)



Ferrule endface geometry
(Expanded view from D direction, after polishing)

IEC 1887/13

Figure 22 – 6,25 mm duplex plug connector interface – Push/pull, APC

Table 40 – Dimensions of the 6,25 mm duplex plug connector interface, APC

Reference	Dimensions			Remarks
	Minimum	Basic	Maximum	
A			1,249 5 mm	[a] and Table 42
B	2,6 mm		2,7 mm	
C	4,6 mm		4,8 mm	
D	4,65 mm		4,75 mm	
E	4,3 mm		4,4 mm	
F	3,3 mm		3,4 mm	
G	25°		35°	
H	25°		35°	
I	6,55 mm		–	[b]
J	4,2 mm		4,5 mm	[c]
K	5,5 mm		–	
L	2,4 mm		2,5 mm	
M	1,5 mm		–	
N	0,6 mm		–	
O	0,5 mm		–	
P	2,6 mm		–	[b]
Q	1 mm		1,1 mm	[b] and [c]
R	2,65 mm		2,9 mm	[b]
S	5,5 mm		5,6 mm	
T	4,3 mm		4,5 mm	
U	–		3,7 mm	
V	–		2,4 mm	
W	6,5 mm		6,6 mm	
AB	3,85 mm		3,95 mm	
AC	0,7 mm		0,9 mm	
AD	0,2 mm		–	Radius
AE	3 mm		–	
AF	2,2 mm		2,3 mm	
AM	6,2 mm		6,3 mm	
AP	–		3,7 mm	
EA	32,5°		45°	Angle
EC	–	90°	–	Angle, [e]

[a] A chamfer or radius is allowed to maximum depth of 0,5 mm from the ferrule endface.

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

[c] The dimension J is given for the plug endface when not mated. It is noticed that the ferrule is movable by a certain axial compression force with direct contacting endfaces, and therefore the dimension J is given variable. Ferrule compression force shall be 5,5 N to 6,5 N when the position of the optical datum target from the mechanical datum target is moved in the range of 3,9 mm to 4,1 mm. In addition, the dimension J shall become less than 3,25 mm with a relatively large axial compression force.

[d] The right-side position of Q shall become the left-side position to the plane defined by the mechanical datum target when the coupling sleeve is moved to its most left-direction position.

[e] Dimension EC is defined as an angle between two planes: one plane, plane A, passes through the axis of the ferrule and 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 normal to the APC reference plane.

Figure 23 is an example of the 6,25 mm duplex plug connector interface – Push/pull. Table 41 gives dimensions of the 6,25 mm duplex plug connector interface – Push/pull and Table 42 gives grade of the 6,25 mm duplex plug connector interface – Push/pull.

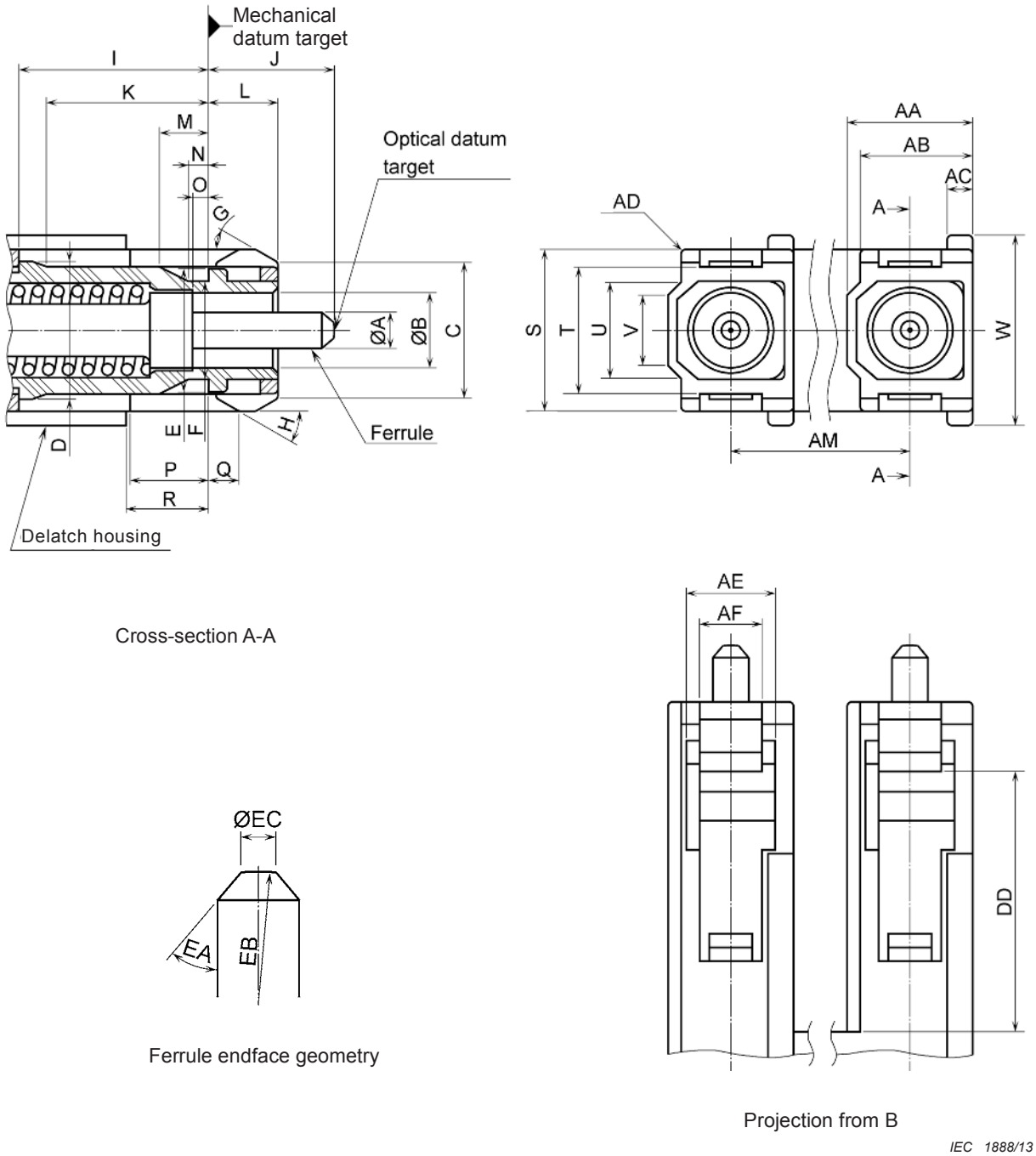


Figure 23 – 6,25 mm duplex plug connector interface – Push/pull

Table 41 – Dimensions of the 6,25 mm duplex plug connector interface

Reference	Dimensions		Remarks
	Minimum	Maximum	
A		1.249 5 mm	[a] see Table 42
B	2,6 mm	2,7 mm	
C	4,6 mm	4,8 mm	
D	4,65 mm	4,75 mm	
E	4,3 mm	4,4 mm	
F	3,3 mm	3,4 mm	
G	25°	35°	Angle
H	25°	35°	Angle
I	6,55 mm	–	[b]
J	4,2 mm	4,5 mm	[c]
K	5,5 mm	–	
L	2,4 mm	2,5 mm	
M	1,5 mm	–	
N	0,6 mm	–	
O	0,5 mm	–	
P	2,6 mm	–	[b]
Q	1,0 mm	1,1 mm	[b] and [d]
R	2,65 mm	2,9 mm	[b]
S	5,5 mm	5,6 mm	
T	4,3 mm	4,5 mm	
U	–	3,7 mm	
V	–	2,4 mm	
W	6,5 mm	6,6 mm	
AB	3,85 mm	3,95 mm	
AC	0,7 mm	0,9 mm	
AD	0,2 mm	–	Radius
AE	3,0 mm	–	
AF	2,2 mm	2,3 mm	
AM	6.2 mm	6.3 mm	
DD	9,25 mm	–	
EA	32,5°	45°	Angle
EB	5 mm	30 mm	Radius, [e]
EC	0,6 mm	NA	Diameter

[a] A chamfer or radius is allowed to a maximum depth of 0,5 mm from the ferrule endface.

[b] The delatch housing shall be movable toward the right and the left directions. These dimensions are given when the coupling sleeve is moved in its most right-direction position.

[c] The dimension J is given for the plug endface when not mated. It is noticed that the ferrule is movable by a certain axial compression force with direct contacting endfaces, and therefore the dimension J is variable. Ferrule compression force shall be 5,5 N to 6,5 N when the position of the optical datum target from the mechanical datum target is moved in the range of 3,9 mm to 4,1 mm. In addition, the dimension J shall become less than 3,25 mm with a relatively large axial compression force.

[d] The right-side position of Q shall become left-side position to the plane defined by the mechanical datum target when the coupling sleeve is moved to its most left-direction position.

[e] Dome eccentricity of the spherically polished ferrule endface shall be less than 70 μm.

Table 42 – Grade

Grade	Dimensions mm		Remarks
	A		
	Minimum	Maximum	
A	–	–	[a]
B	–	–	[a]
C	–	–	[a]
D	–	–	[a]
Am	1,248 3	1,249 5	[b]
Bm	1,246 7	1,249 5	[b]

[a] See IEC 61755-3-1.

[b] See IEC 61755-6-1

Figure 24 is an example of the 6,25 mm duplex adaptor connector interface. Table 43 gives dimensions of the 6,25 mm duplex adaptor connector interface l and Table 44 gives grade of the 6,25 mm duplex adaptor connector interface.

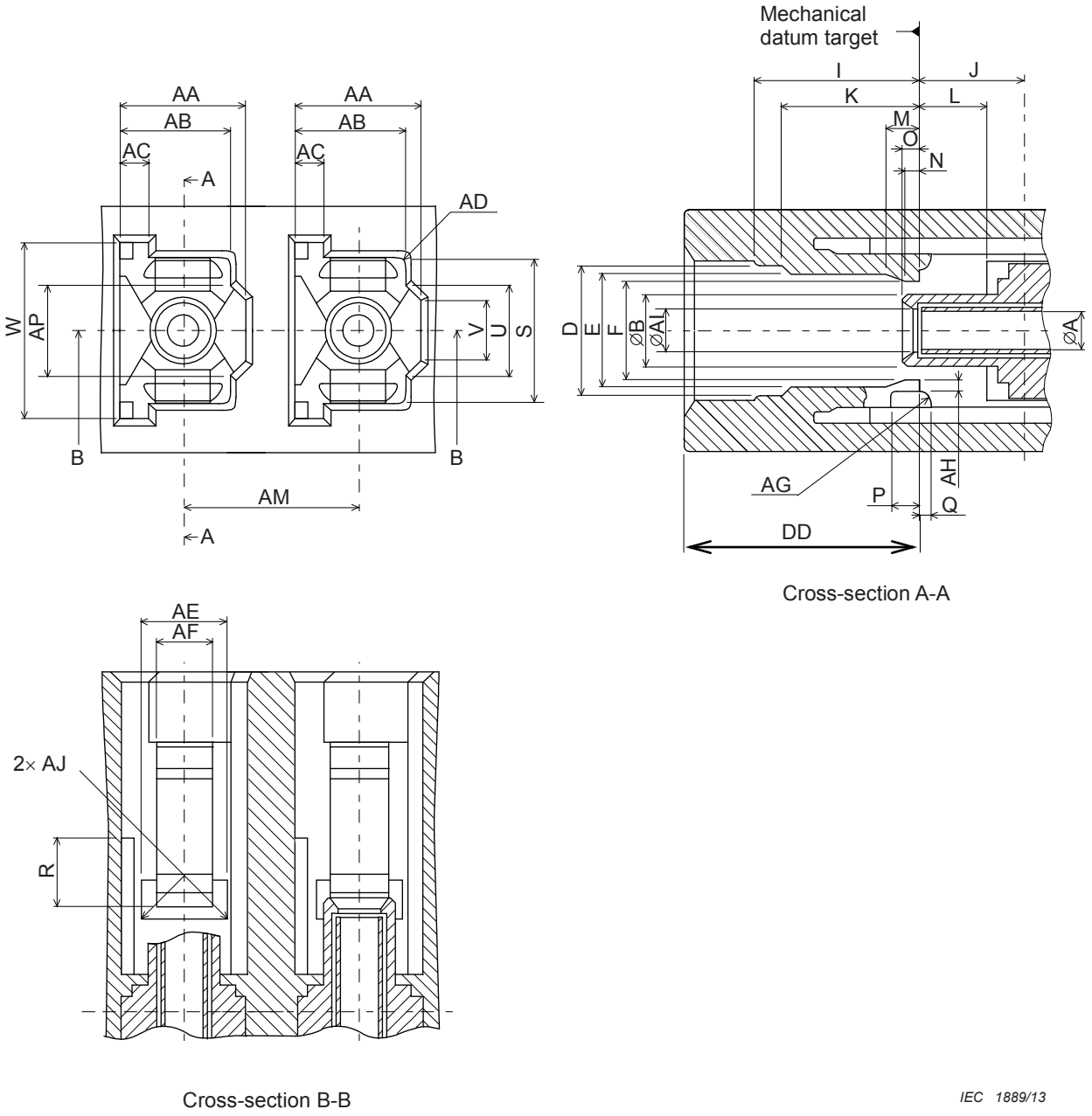


Figure 24 – 6,25 mm duplex adaptor connector interface

Table 43 – Dimensions of the 6,25 mm duplex adaptor connector interface

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
A			See Table 44
B	2,39	2,59	Diameter
D	4,8	5	
E	4,55	–	
F	2,9	3,5	[a]
I	–	6,5	
J	3,9	4,1	
K	–	5,4	
L	2,55	2,7	
M	–	1,4	
N	–	0,55	
O	–	0,6	
P	–	1,2	
Q	–	0,4	
R	–	2,55	
S	5,65	5,75	
U	3,8	4	
V	3,3	–	
W	6,7	–	
AA	4,45	4,55	
AB	4,01	4,11	
AC	0,95	1,15	
AD	–	0,2	Radius
AE	2,8	2,95	
AF	1,9	2,1	
AG	0,3	–	Radius
AH	0,4	0,55	
AI	1,34	1,44	Diameter
AJ	–	0,3	Radius
AM	6,20	6,30	
AP	3,8	4	
DD	8.77	9.23	

[a] The dimension F shall become greater than 4,5 mm when a plug is coupled to or removed from the adaptor.

Table 44 – Grade

Grade	Dimensions mm		Notes
	Minimum	Maximum	
1			Resilient sleeve, [a] and [b]

[a] The connector alignment feature is a resilient alignment sleeve. The feature shall accept a gauge pin to the centre of the adaptor with a force of 1 N to 2,5 N on 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 J. The gauge pin is shown in Figure 4 and Table 10.

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

Figure 25 is an example of the horizontal duplex plug connector interface. Table 45 gives dimensions of the horizontal duplex plug connector interface and Table 46 gives grade of the horizontal duplex plug connector interface.

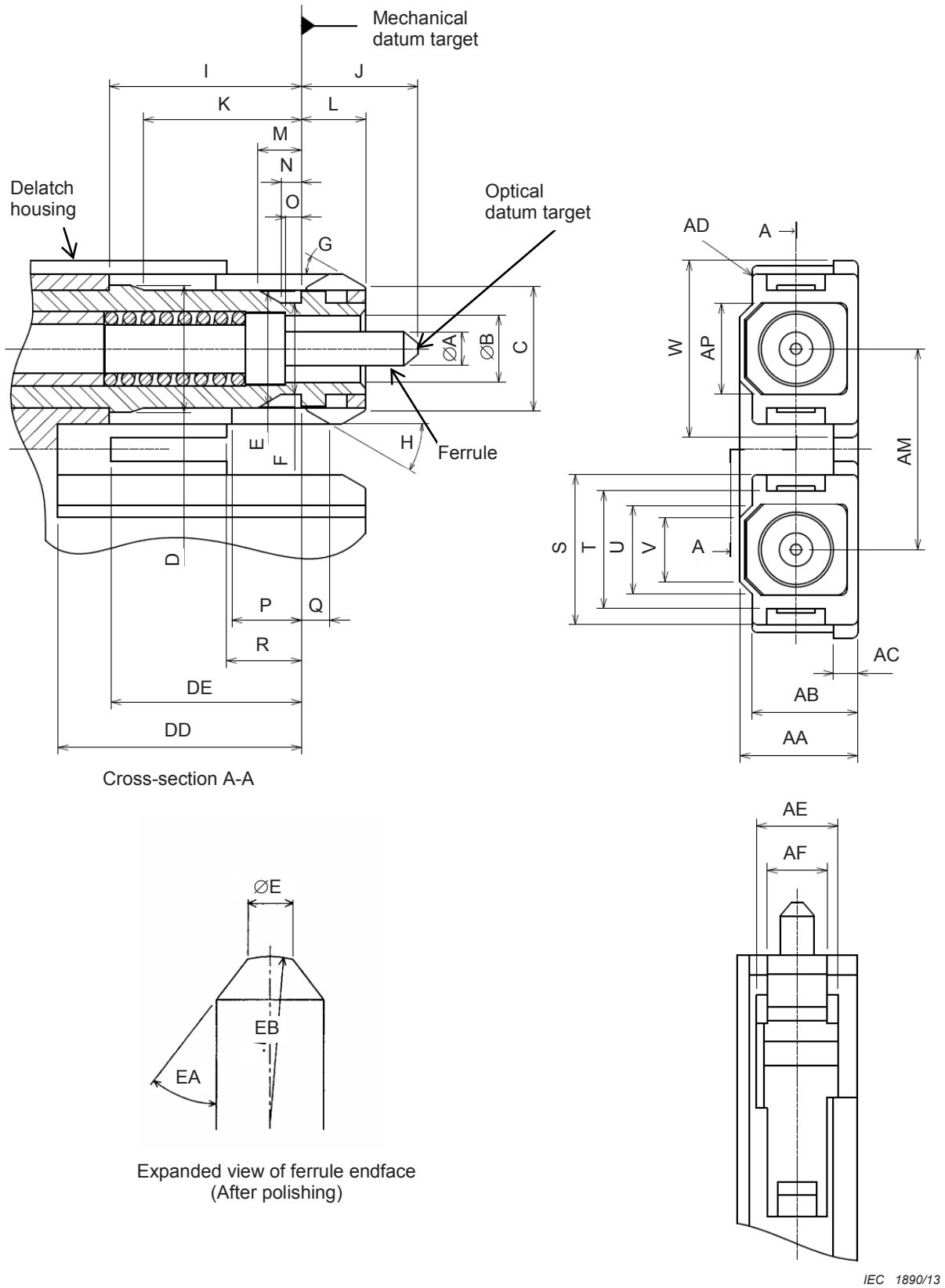


Figure 25 – Horizontal duplex plug connector interface – Push/pull

Table 45 – Dimensions of the horizontal duplex plug connector interface

Reference	Dimensions		Notes
	Minimum	Maximum	
A		1.249 5 mm	[a] and see Table 46
B	2,6 mm	2,7 mm	
C	4,6 mm	4,8 mm	
D	4,65 mm	4,75 mm	
E	4,3 mm	4,4 mm	
F	3,3 mm	3,4 mm	
G	25°	35°	Angle
H	25°	35°	Angle
I	6,55 mm	–	[b]
J	4,2 mm	4,5 mm	[c]
K	5,5 mm	–	
L	2,4 mm	2,5 mm	
M	1,5 mm	–	
N	0,6 mm	–	
O	0,5 mm	–	
P	2,6 mm	–	[b]
Q	1,0 mm	1,1 mm	[b] and [d]
R	2,65 mm	2,9 mm	[b]
S	5,5 mm	5,6 mm	
T	4,3 mm	4,5 mm	
U	–	3,7 mm	
V	–	2,4 mm	
W	14,1 mm	14,2 mm	
AA	4,3 mm	4,4 mm	
AB	3,7 mm	3,85 mm	
AC	0,7 mm	0,9 mm	
AD	0,2 mm	–	Radius
AE	3,0 mm	–	
AF	2,2 mm	2,3 mm	
AM	7,45 mm	7,55 mm	
DD	9,25 mm	–	
DE	6,55 mm	–	
EA	32,5°	45°	Angle
EB	5 mm	30 mm	Radius, [e]
EC	0,6 mm	NA	Diameter

[a] A chamfer or radius is allowed to a maximum depth of 0,5 mm from the ferrule endface.

[b] The delatch housing shall be movable toward the right and the left directions. These dimensions are given when the coupling sleeve is moved in its most right-direction position.

[c] The dimension J is given for the plug endface when not mated. It is noticed that the ferrule is movable by a certain axial compression force with direct contacting endfaces, and therefore the dimension J is variable. Ferrule compression force shall be 5,5 N to 6,5 N when the position of the optical datum target from the mechanical datum target is moved in the range of 3,9 mm to 4,1 mm. In addition, the dimension J shall become less than 3,25 mm with a relatively large axial compression force.

[d] The right-side position of Q shall become left-side position to the plane defined by the mechanical datum target when the coupling sleeve is moved to its most left-direction position.

[e] Dome eccentricity of the spherically polished ferrule endface shall be less than 70 μm.

Table 46 – Grade

Grade	Dimensions mm		Remarks
	A		
	Minimum	Maximum	
A	–	–	[a]
B	–	–	[a]
C	–	–	[a]
D	–	–	[a]
Am	1,248 3	1,249 5	[b]
Bm	1,246 7	1,249 5	[b]

[a] See IEC 61755-3-1.

[b] See IEC 61755-6-1.

Figure 26 is an example of the horizontal duplex adaptor connector interface. Table 47 gives dimensions of the horizontal duplex adaptor connector interface and Table 48 gives grade of the horizontal duplex adaptor connector interface.

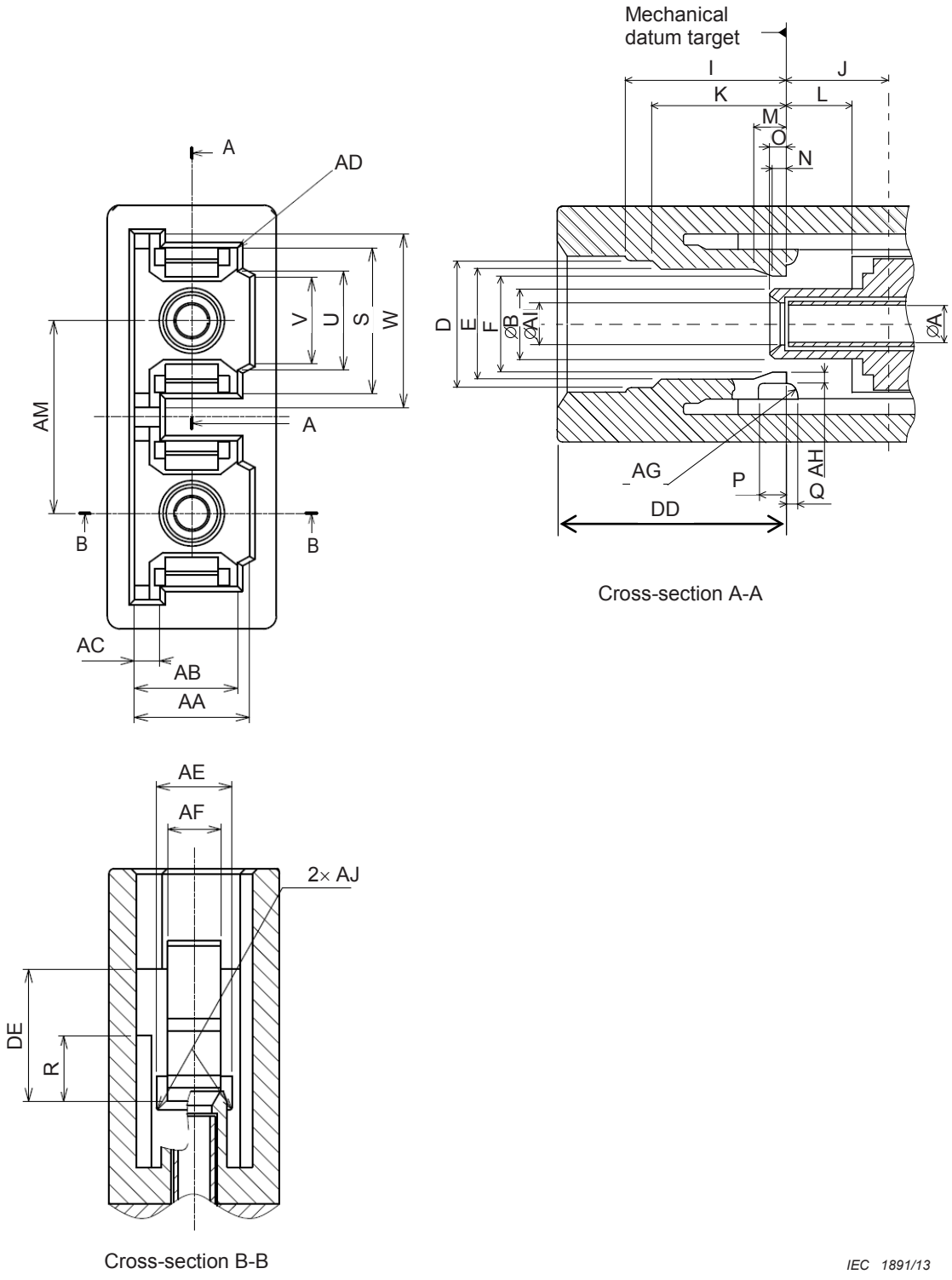


Figure 26 – Horizontal duplex adaptor connector interface

Table 47 – Dimensions of the horizontal duplex adaptor connector interface

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
A			See Table 48
B	2,39	2,59	Diameter
D	4,8	5,0	
E	4,55	–	
F	2,9	3,5	[a]
I	–	6,5	
J	3,9	4,1	
K	–	5,4	
L	2,55	2,7	
M	–	1,4	
N	–	0,55	
O	–	0,6	
P	–	1,2	
Q	–	0,4	
R	–	2,55	
S	5,65	5,75	
U	3,8	4	
V	2,8	–	
W	14,4	–	
AA	4,45	4,55	
AB	4,01	4,11	
AC	0,95	1,15	
AD	–	0,2	Radius
AE	2,8	2,95	
AF	1,9	2,1	
AG	0,3	–	Radius
AH	0,4	0,55	
AI	1,34	1,44	Diameter
AJ	–	0,3	Radius
AM	7,45	7,55	

[a] The dimension F shall become greater than 4,5 mm when a plug is coupled to or removed from the adaptor.

Table 48 – Grade

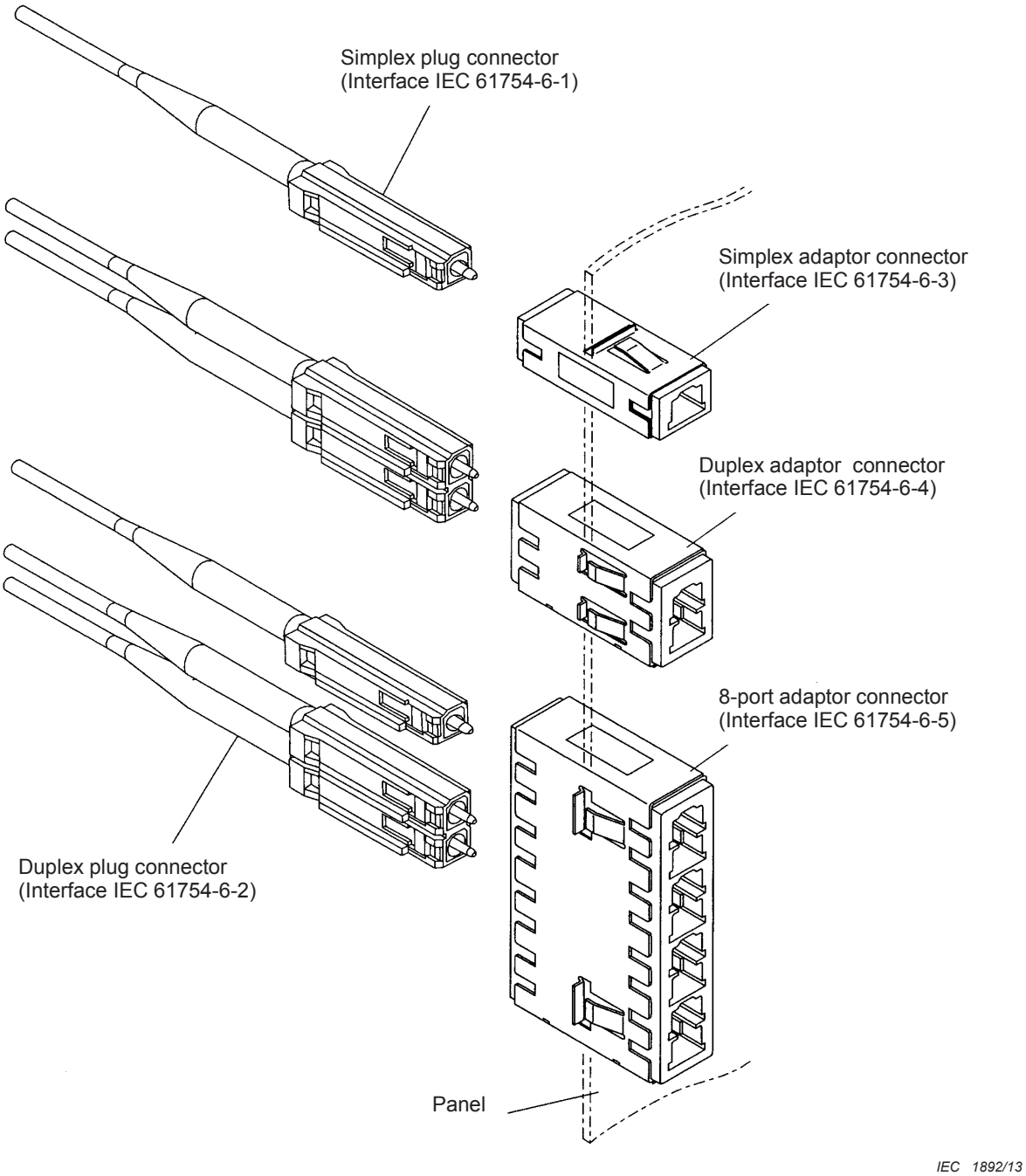
Grade	Dimensions mm		Notes
	Minimum	Maximum	
1			Resilient sleeve, [a] and [b]

[a] The connector alignment feature is a resilient alignment sleeve. The feature shall accept a gauge pin to the centre of the adaptor with a force of 1 N to 2,5 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 J. The gauge pin is shown in Figure 4 and Table 10.

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

Annex A
(informative)

Configuration of type MU-A connector set



NOTE 1 Adaptors for panel use are illustrated as an example.

NOTE 2 Adaptors for printed board use are also available.

Figure A.1 – Configuration of type MU-A connector set

Annex B
(informative)

Configuration of type MU-B connector set

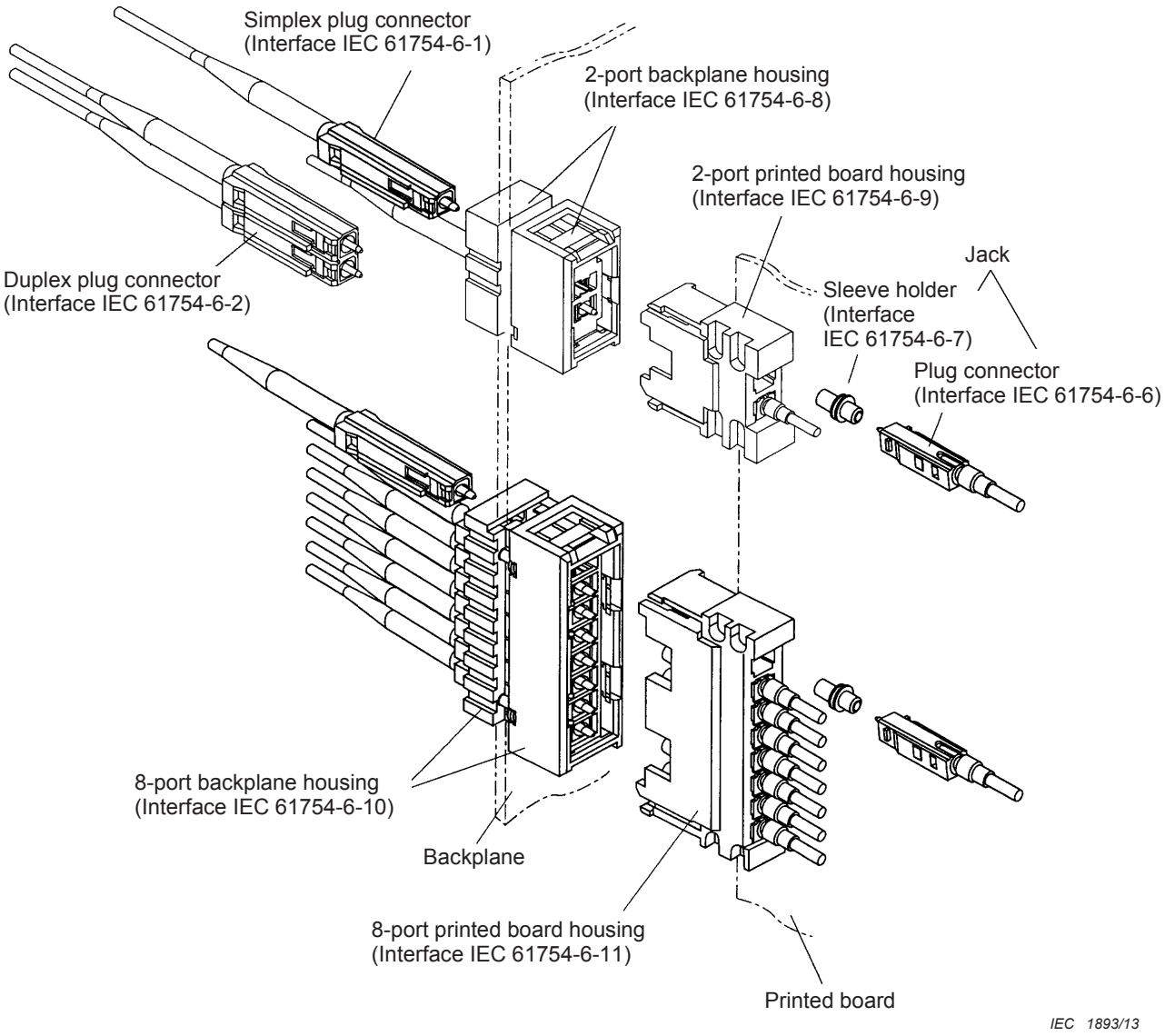


Figure B.1 – Configuration of type MU-B connector set

Annex C
(informative)

Floating 2-port connector plug

Only floating style 2-port connector plugs shall be used as the MU optical connector interface of fibre channel physical interface standard (FC-PI2). The floating 2-port connectors essentially take two simplex plug connectors (Interface 6-1) and mechanically couple them together so each of the two MU simplex plug connectors are retained with the nominal distance of 6,25 mm between the centre of connectors, but free to 'float' within the constraints of the coupling assembly. Figure C.1 and the Table C.1 describe the floating duplex connector plug envelope dimensions.

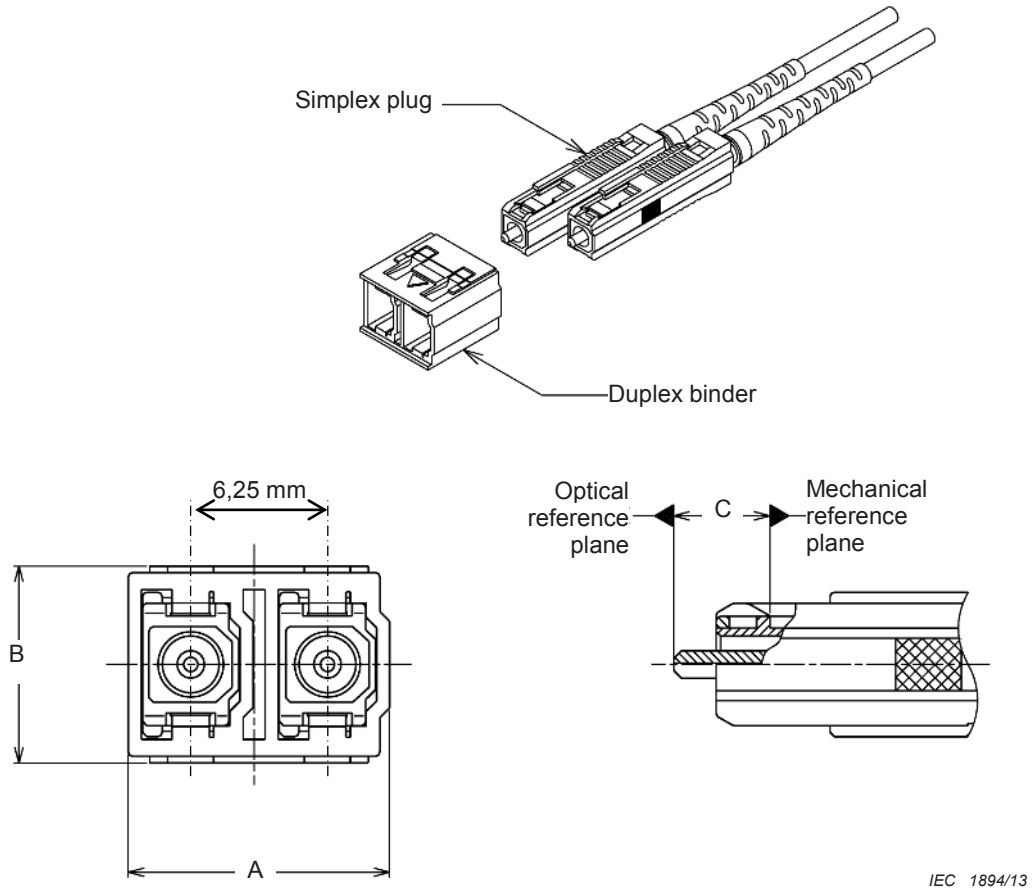


Figure C.1 – Floating 2-port connector plug

Table C.1 – Dimensions table for 2-port connector plug

Reference	Nominal mm
A	11,95
B	9
C	4 mated 4,4 free

Bibliography

IEC 61755-6-1, *Fibre optic interconnecting devices and passive components – Fibre optic connector optical interfaces – Part 6-1: Optical interfaces for 50,0 um multimode fibres – General and guidance* [1]

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[1] Under consideration.

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