

INTERNATIONAL STANDARD

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





THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2013 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

Useful links:

IEC publications search - www.iec.ch/searchpub

The advanced search enables you to find IEC publications by a variety of criteria (reference number, text, technical committee,...).

It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available on-line and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary (IEV) on-line.

Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.



IEC 61754-6

Edition 2.0 2013-07

INTERNATIONAL STANDARD

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE

XC

ICS 33.180.20

ISBN 978-2-8322-1010-9

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	5
1 Scope.....	7
2 Normative references	7
3 Description	7
4 Interfaces	7
Annex A (informative) Configuration of type MU-A connector set	74
Annex B (informative) Configuration of type MU-B connector set	75
Annex C (informative) Floating 2-port connector plug.....	76
Bibliography.....	77
Figure 1 – Simplex plug connector interface – Push/pull	11
Figure 2 – 4,5 mm duplex plug connector interface – Push/pull.....	14
Figure 3 – Simplex adaptor connector interface – Push/pull.....	17
Figure 4 – Gauge pin for resilient alignment sleeve.....	19
Figure 5 – 4,5 mm duplex adaptor connector interface – Push/pull.....	20
Figure 6 – 8-port adaptor connector interface – Push/pull	23
Figure 7 – Plug connector interface – For printed board housings.....	25
Figure 8 – Sleeve holder interface	27
Figure 9 – 2-port backplane housing interface.....	30
Figure 10 – 2-port printed board housing interface.....	34
Figure 11 – 8-port backplane housing interface.....	37
Figure 12 – 8-port printed board housing interface.....	41
Figure 13 – Simplex active device receptacle interface	43
Figure 14 – Detail of the mechanical stop for rigid bore alignment feature.....	45
Figure 15 – 4,5 mm duplex active device receptacle interface.....	46
Figure 16 – Detail of the mechanical stop for rigid bore alignment feature.....	48
Figure 17 – 6,25 mm duplex active device receptacle interface.....	49
Figure 18 – Detail of the mechanical stop for rigid bore alignment feature.....	51
Figure 19 – Plug connector interface for printed board housings, APC	53
Figure 20 – Simplex plug connector interface – Push/pull, APC	56
Figure 21 – 4,5 mm duplex plug connector interface – Push/pull, APC.....	59
Figure 22 – 6,25 mm duplex plug connector interface – Push/pull, APC	62
Figure 23 – 6,25 mm duplex plug connector interface – Push/pull	64
Figure 24 – 6,25 mm duplex adaptor connector interface	67
Figure 25 – Horizontal duplex plug connector interface – Push/pull.....	69
Figure 26 – Horizontal duplex adaptor connector interface.....	72
Figure A.1 – Configuration of type MU-A connector set.....	74
Figure B.1 – Configuration of type MU-B connector set.....	75
Figure C.1 – Floating 2-port connector plug	76
Table 1 – MU-A connector set.....	9

Table 2 – MU-B connector set.....	9
Table 3 – MU receptacles	10
Table 4 – Dimensions of the simplex plug connector interface	12
Table 5 – Grade.....	13
Table 6 – Dimensions of the 4,5 mm duplex plug connector interface	15
Table 7 – Grade.....	16
Table 8 – Dimensions of the simplex adaptor connector interface	18
Table 9 – Grade.....	18
Table 10 – Gauge pin dimensions	19
Table 11 – Dimensions of the 4,5 mm duplex adaptor connector interface	21
Table 12 – Grade.....	22
Table 13 – Dimensions of the 8-port adaptor connector interface	24
Table 14 – Grade.....	24
Table 15 – Dimensions of the plug connector interface	26
Table 16 – Grade.....	26
Table 17 – Dimensions of the sleeve holder interface	28
Table 18 – Grade.....	28
Table 19 – Dimensions of the 2-port backplane housing interface).....	31
Table 20 – Grade.....	32
Table 21 – Dimensions of the 2-port printed board housing interface	35
Table 22 – Dimensions of the 8-port backplane housing interface	38
Table 23 – Grade.....	39
Table 24 – Dimensions of the 8-port printed board housing interface	42
Table 25 – Dimensions of the simplex active device receptacle interface	44
Table 26 – Alignment feature grade	45
Table 27 – Dimensions of the mechanical stop for rigid bore alignment feature	45
Table 28 – Mechanical stop feature grade.....	46
Table 29 – Dimensions of the 4,5 mm duplex active device receptacle interface	47
Table 30 – Alignment feature grade	48
Table 31 – Dimensions of the mechanical stop for rigid bore alignment feature	48
Table 32 – Mechanical stop feature grade.....	49
Table 33 – Dimensions of the 6,25 mm duplex active device receptacle interface	50
Table 34 – Alignment feature grade	51
Table 35 – Dimensions of the mechanical stop for rigid bore alignment feature	51
Table 36 – Mechanical stop feature grade.....	52
Table 37 – Dimensions of the plug connector interface for printed board housings, APC.....	54
Table 38 – Dimensions of the simplex plug connector interfaces, APC.....	57
Table 39 – Dimensions of the 4,5 mm duplex plug connector interfaces, APC.....	60
Table 40 – Dimensions of the 6,25 mm duplex plug connector interface, APC.....	63
Table 41 – Dimensions of the 6,25 mm duplex plug connector interface.....	65
Table 42 – Grade.....	66
Table 43 – Dimensions of the 6,25 mm duplex adaptor connector interface	68
Table 44 – Grade.....	68

Table 45 – Dimensions of the horizontal duplex plug connector interface	70
Table 46 – Grade	71
Table 47 – Dimensions of the horizontal duplex adaptor connector interface	73
Table 48 – Grade	73
Table C.1 – Dimensions table for 2-port connector plug	76

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING
DEVICES AND PASSIVE COMPONENTS –
FIBRE OPTIC CONNECTOR INTERFACES –****Part 6: Type MU connector family**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61754-6 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 1997 and constitutes a technical revision.

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

- a) addition of standard references;
- b) revision of intermateability.

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

FDIS	Report on voting
86B/3627/FDIS	86B/3662/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 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 publication will remain unchanged until the stability 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 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 intermateability 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

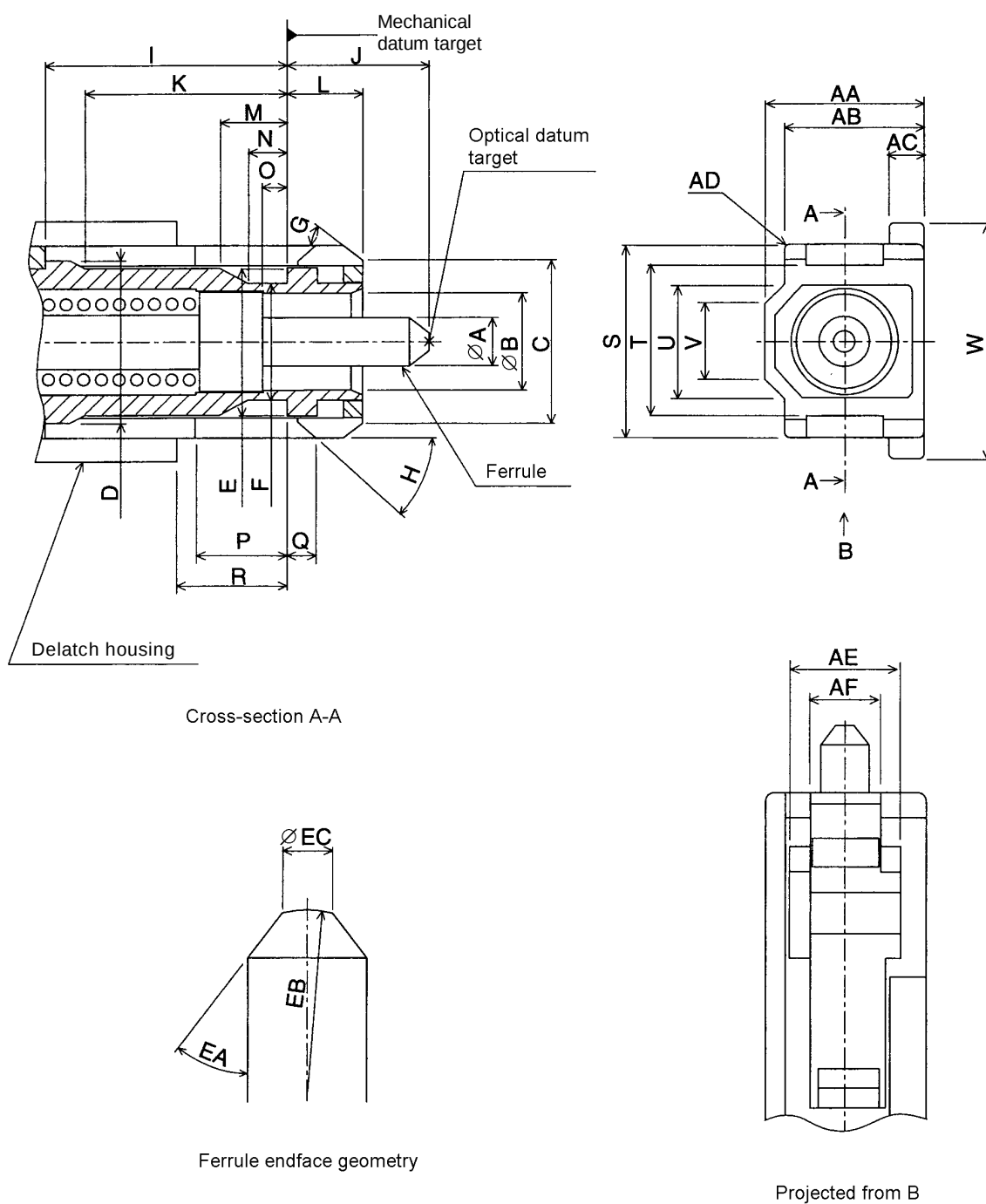
Table 2 – MU-B connector set

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.



IEC 1860/13

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°	
H	25°	35°	
I	6,55 mm	–	
J	4,2 mm	4,5 mm	
K	5,5 mm	–	^b Angle ^b ^c
L	2,4 mm	2,5 mm	
M	1,5 mm	–	
N	0,6 mm	–	
O	0,5 mm	–	
P	2,6 mm	–	
Q	1 mm	1,1 mm	
R	2,65 mm	2,9 mm	
S	5,5 mm	5,6 mm	
T	4,3 mm	4,5 mm	
U	–	3,7 mm	^b and ^d ^b
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	–	
AE	3 mm	–	
AF	2,2 mm	2,3 mm	
EA	32.5°	45°	
EB	5 mm	30 mm	Radius
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 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.

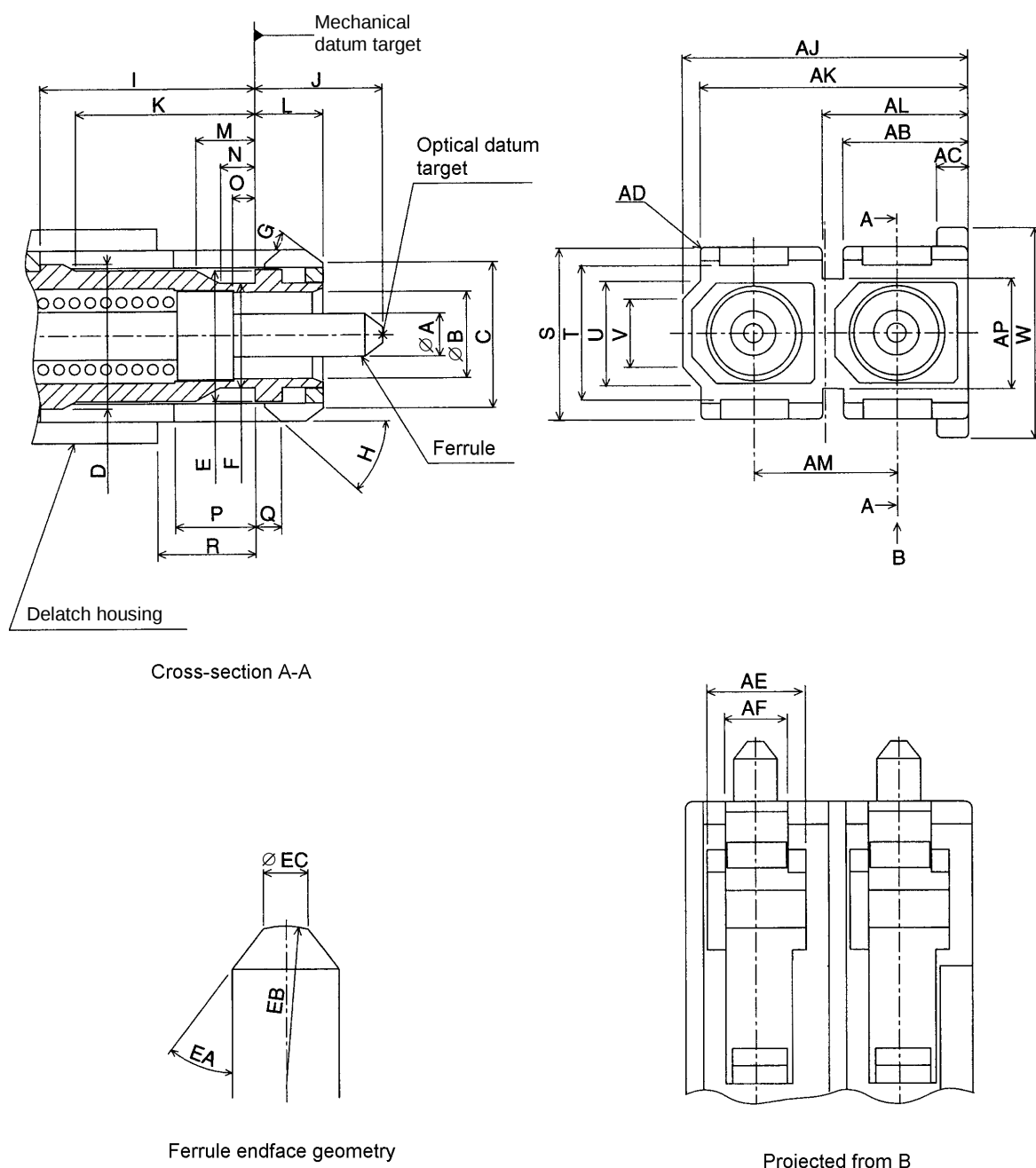
^e 40° to 45° are desirable to minimize debris for backplane connectors.

^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.



IEC 1861/13

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°	
H	25°	35°	
I	6,55 mm	–	
J	4,2 mm	4,5 mm	
K	5,5 mm	–	^b ^b and ^d ^b
L	2,4 mm	2,5 mm	
M	1,5 mm	–	
N	0,6 mm	–	
O	0,5 mm	–	
P	2,6 mm	–	
Q	1,0 mm	1,1 mm	
R	2,65 mm	2,9 mm	
S	5,5 mm	5,6 mm	
T	4,3 mm	4,5 mm	
U	–	3,7 mm	Radius
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	–	
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	^e Radius ^f Diameter
AM	4,45 mm	4,55 mm	
AP	–	3,7 mm	
EA	32.5°	45°	
EB	5 mm	30 mm	
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 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.

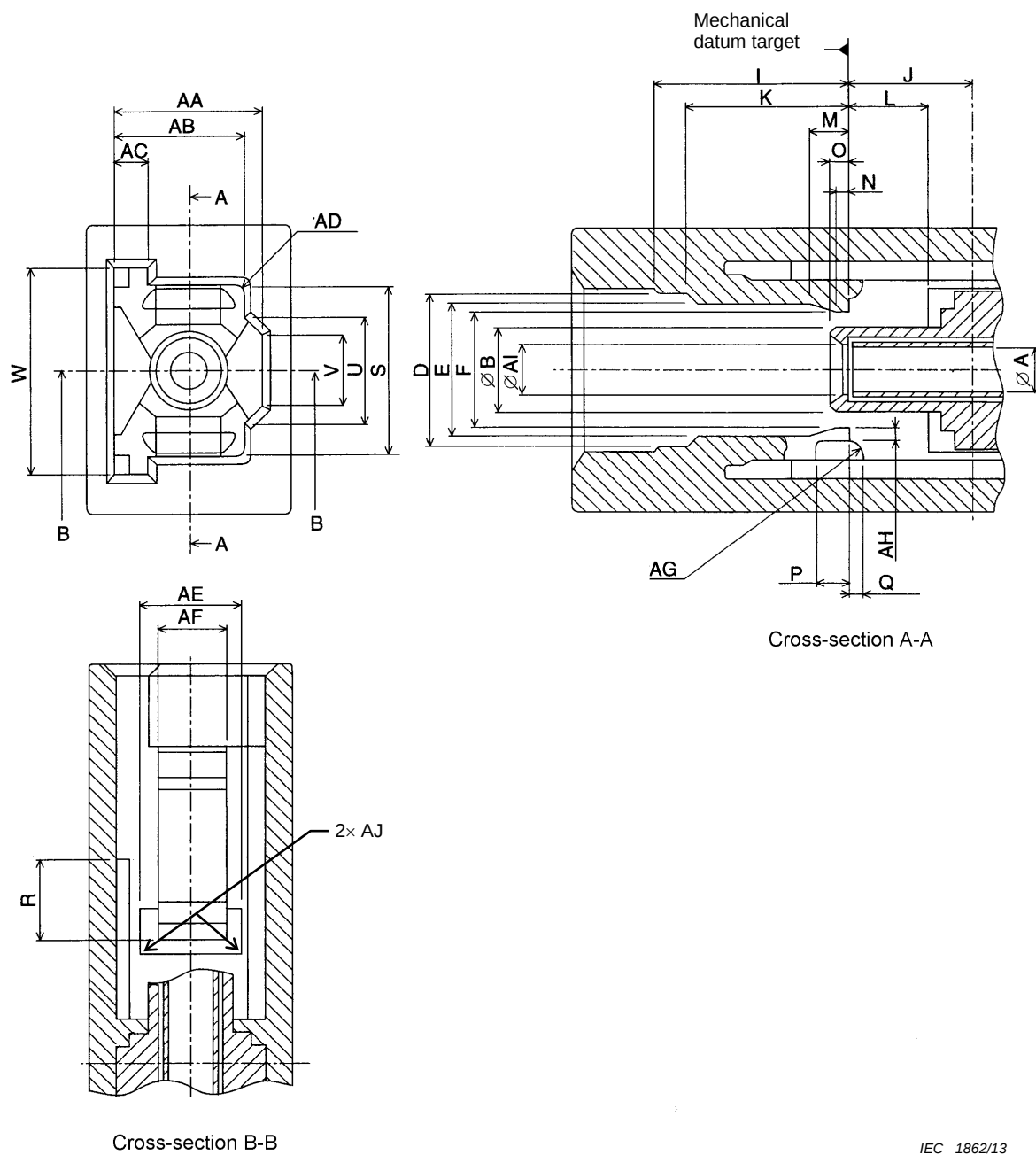
^e 40° to 45° are desirable to minimize debris for backplane connectors.

^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.



IEC 1862/13

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	
D	4,8	5	Diameter
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	–	
AH	0,4	0,55	Radius
AI	1,34	1,44	
AJ	–	0,3	Diameter
			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.

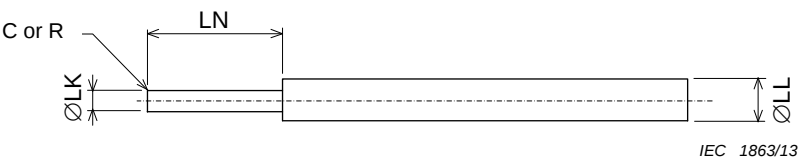
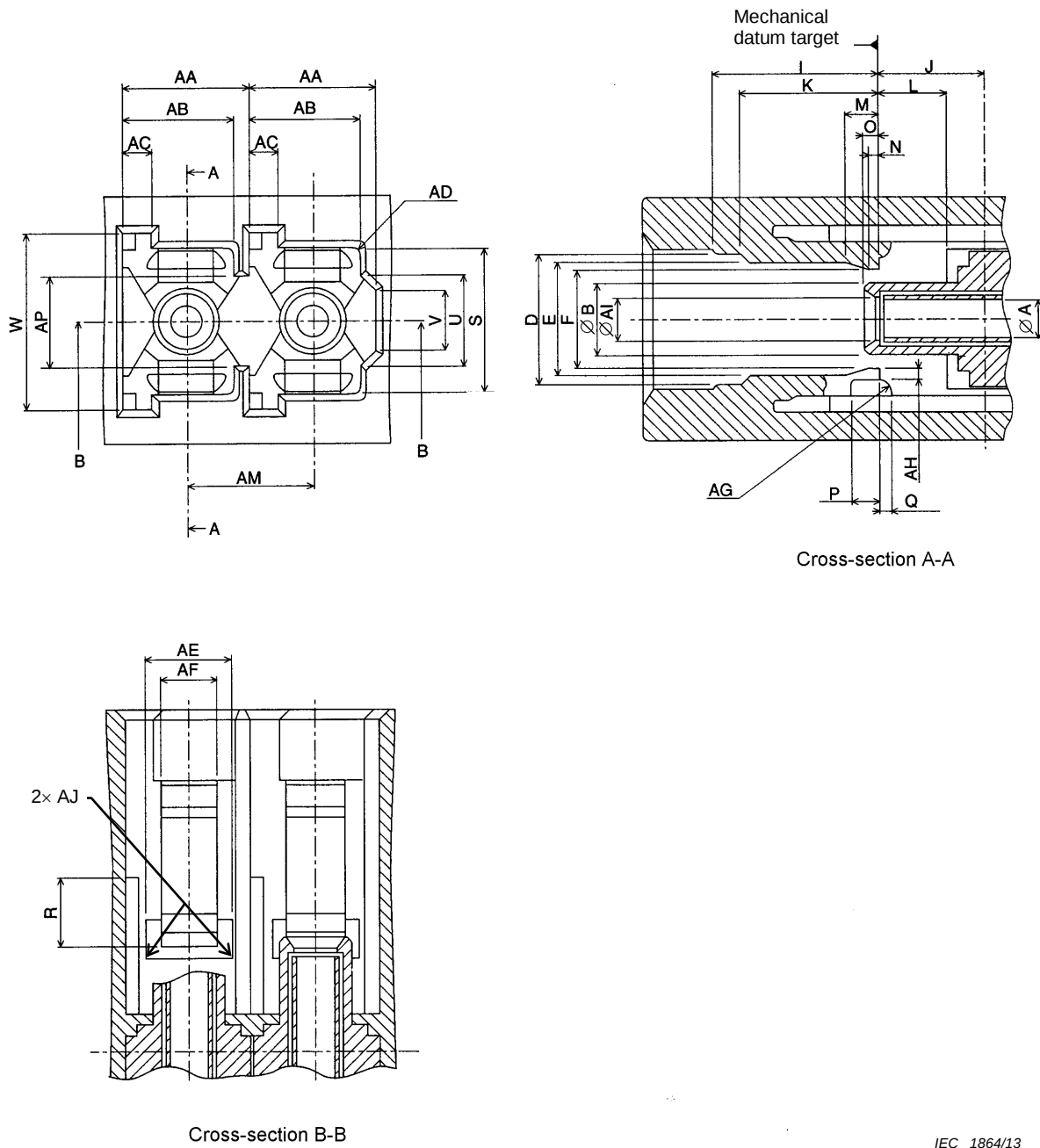


Figure 4 – Gauge pin for resilient alignment sleeve

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.



IEC 1864/13

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	a
E	4,55	–	
F	2,9	3,5	
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	Radius
V	3,3	–	
W	6,7	–	
AA	4,45	4,55	
AB	4,01	4,11	
AC	0,95	1,15	
AD	–	0,2	
AE	2,8	2,95	
AF	1,9	2,1	
AG	0,3	–	
AH	0,4	0,55	Diameter
AI	1,34	1,44	
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.

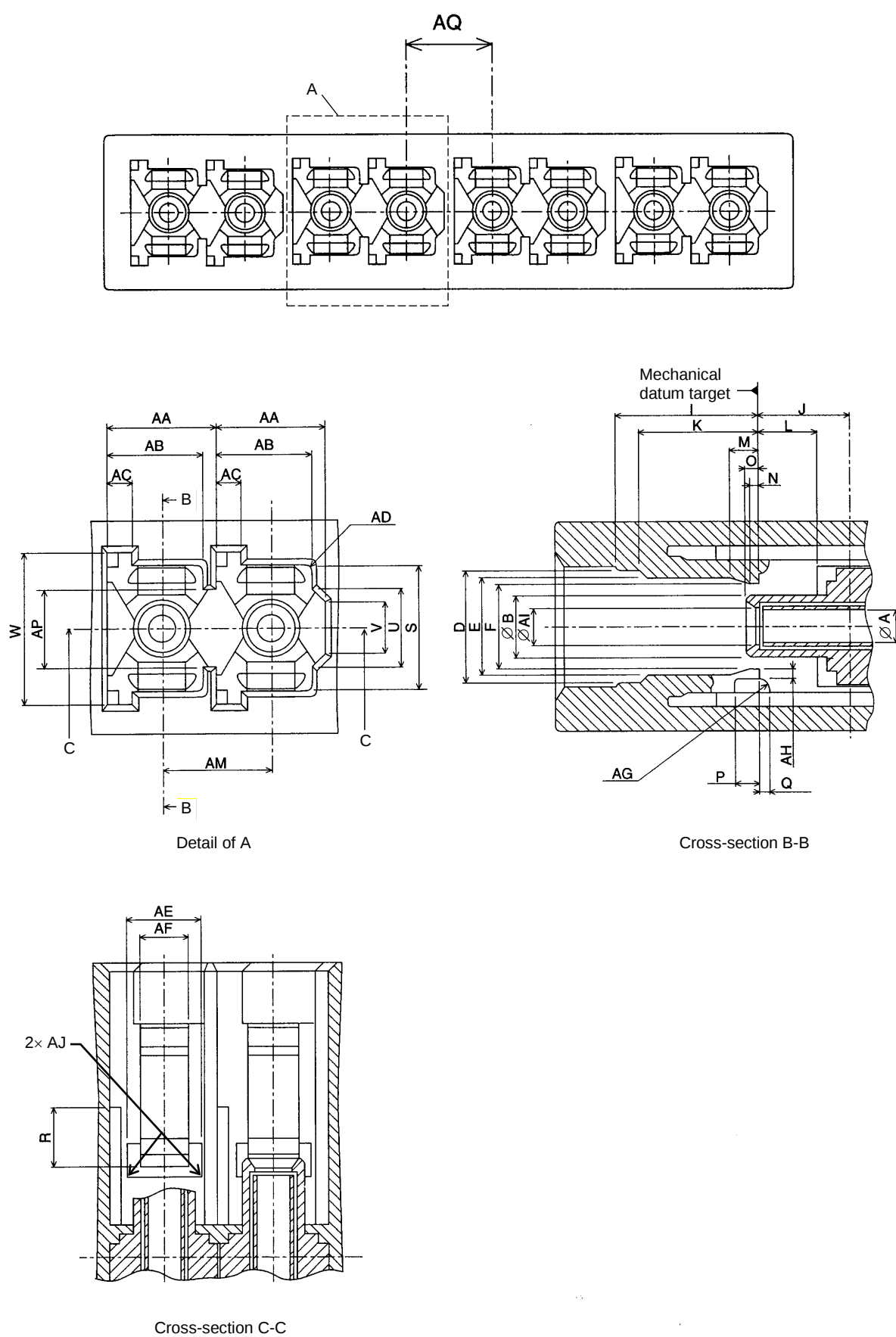


Figure 6 – 8-port adaptor connector interface – Push/pull

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	a
E	4,55	–	
F	2,9	3,5	
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	Radius
AB	4,01	4,11	
AC	0,95	1,15	
AD	–	0,2	
AE	2,8	2,95	Radius
AF	1,9	2,1	
AG	0,3	–	
AH	0,4	0,55	Diameter
AI	1,34	1,44	
AJ	–	0,3	Radius
AM	4,45	4,55	
AP	3,8	4	
AQ	4,8	5,2	

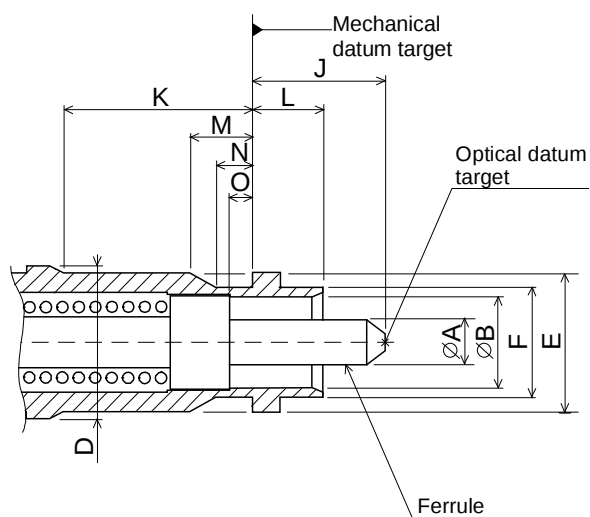
^a The dimension F shall become greater than 4,5 mm when a plug is coupled to or removed from the adaptor.

Table 14 – Grade

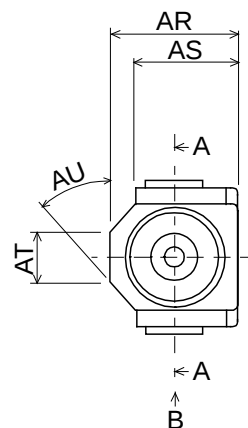
Grade	Dimensions mm		Remarks
	Minimum	Maximum	
1			Resilient sleeve ^a

^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.

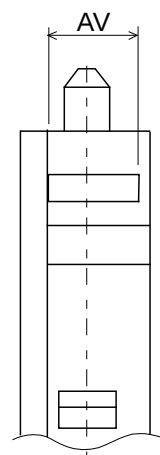
Figure 7 is an example of a plug connector interface. Table 15 gives dimensions of the plug connector interface and Table 16 gives the grade of the plug connector interface.



Cross-section A-A



Ferrule endface geometry

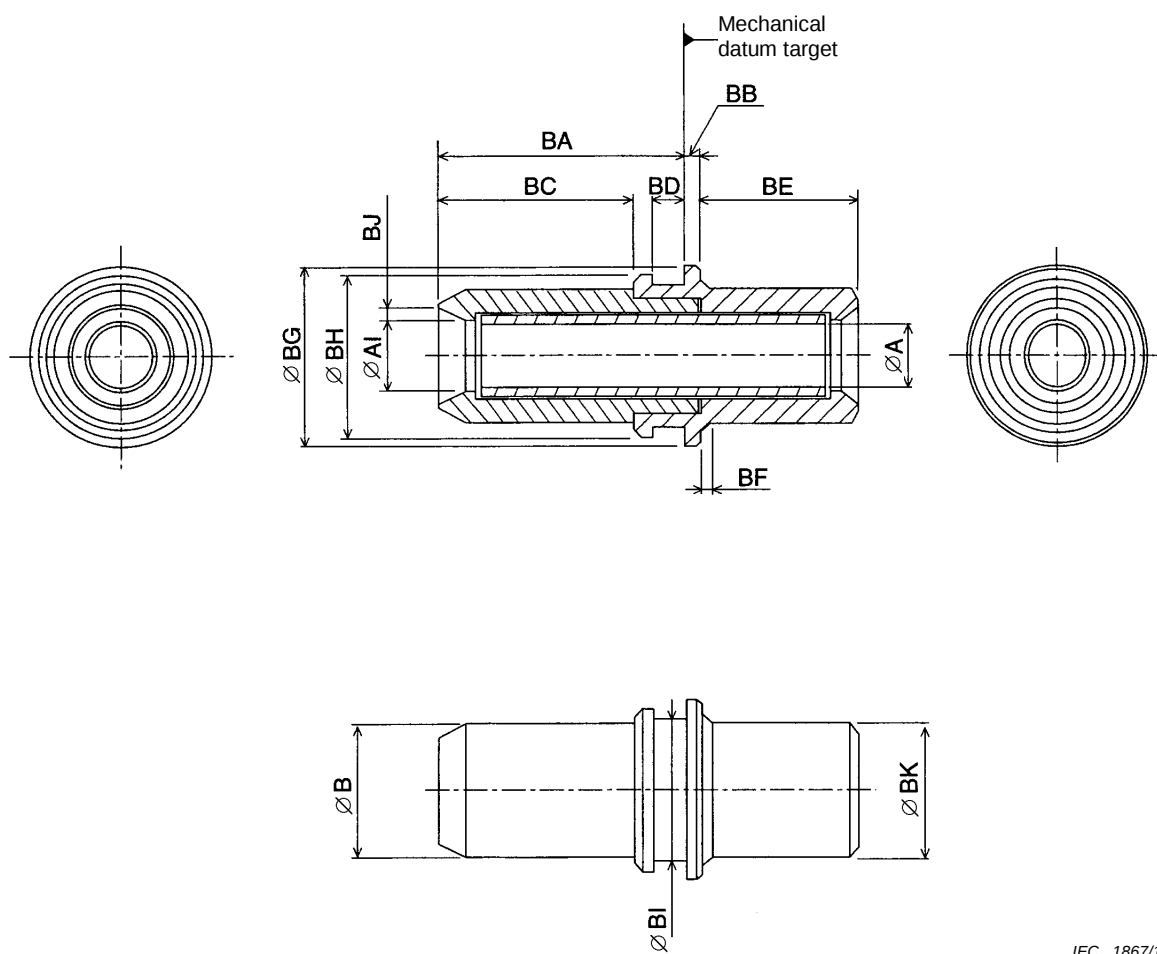


Projected from B

IEC 1866/13

Figure 7 – Plug connector interface – For printed board housings

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.



IEC 1867/13

Figure 8 – Sleeve holder interface

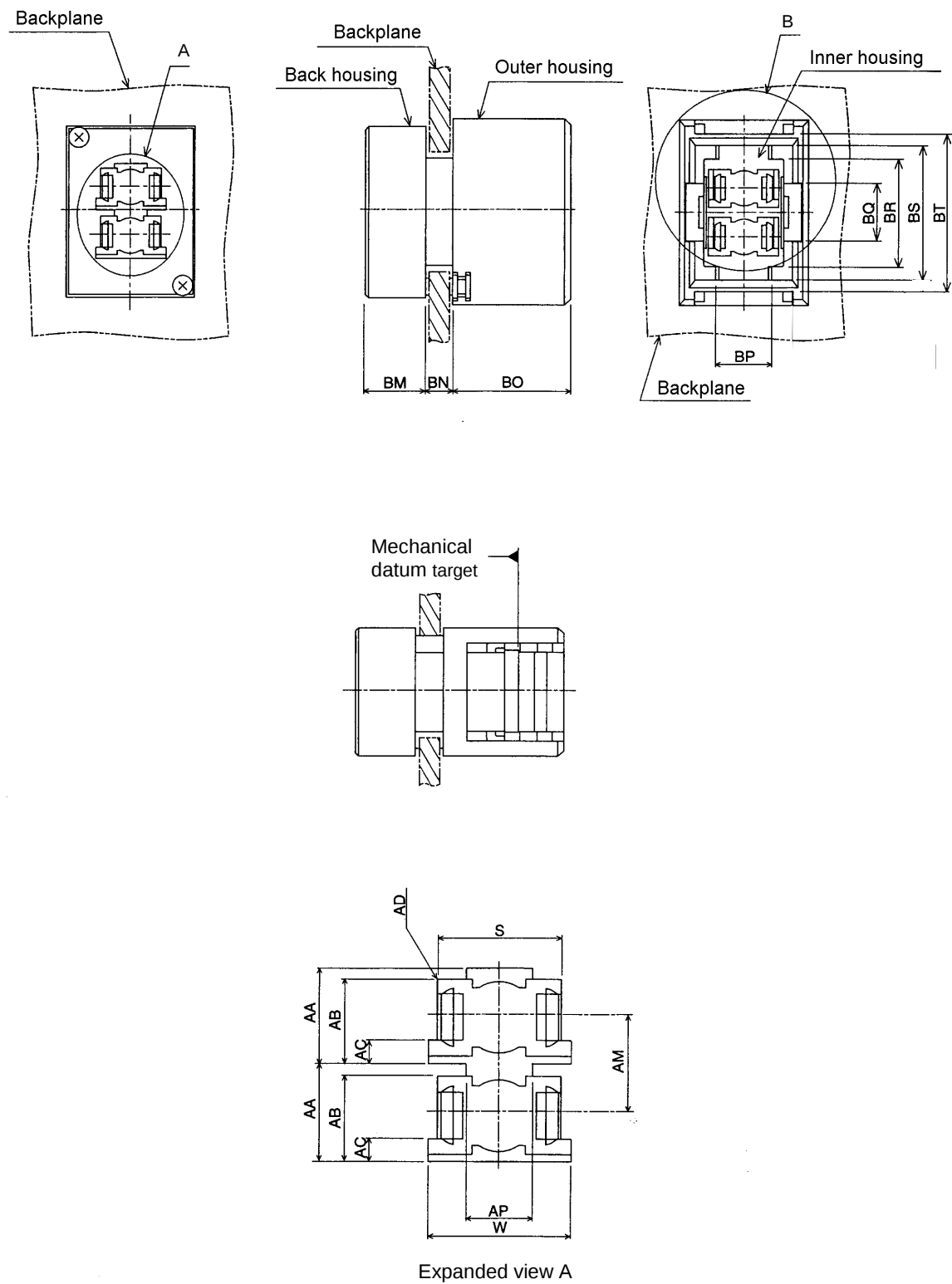
Table 17 – Dimensions of the sleeve holder interface

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

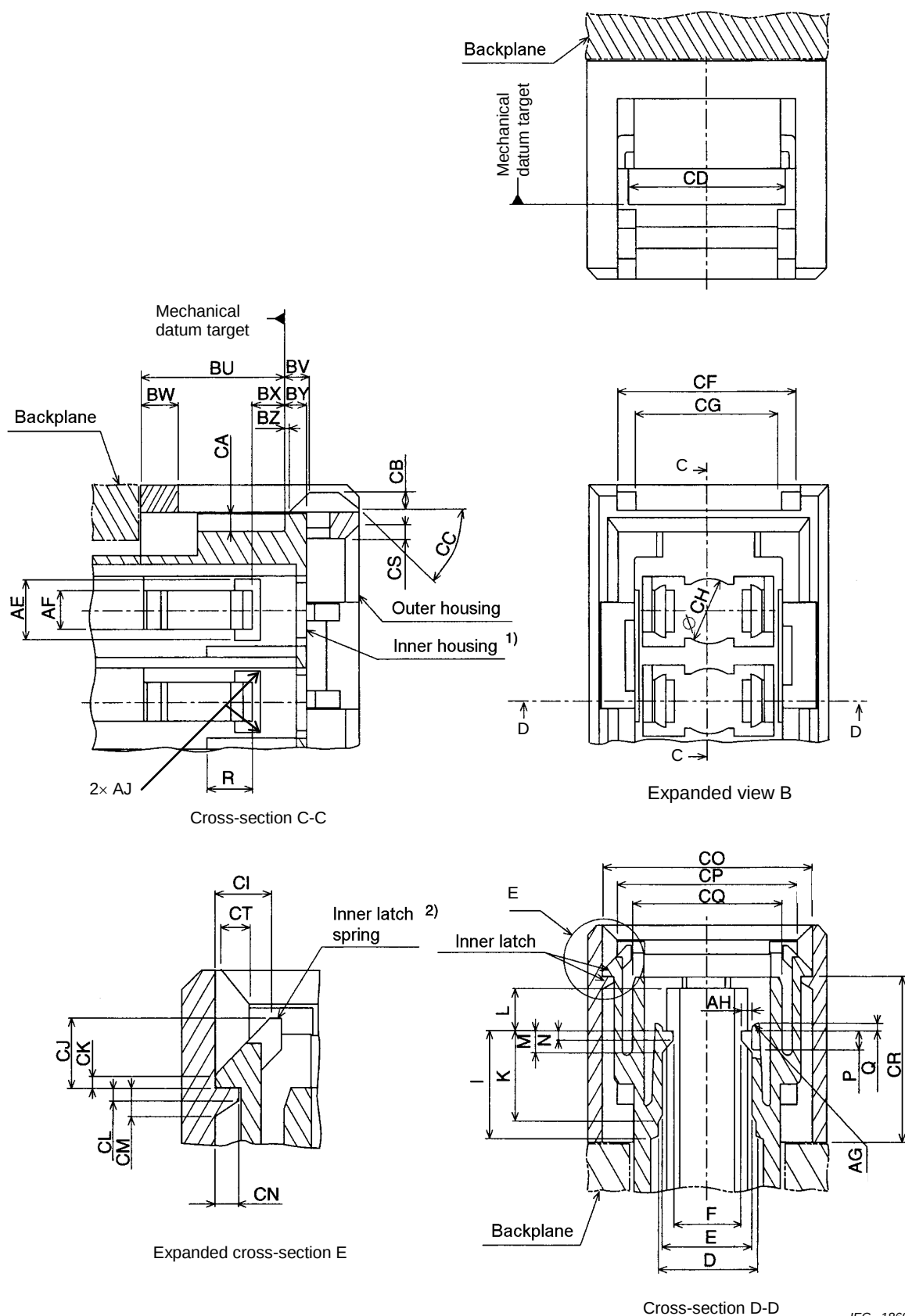
Grade	Dimensions mm		Remarks
	Minimum	Maximum	
1			Resilient sleeve ^a
^a The connector alignment feature is a resilient alignment sleeve. The feature shall accept a gauge pin to a depth of 4,3 mm from the left side with a force of 1 N to 2,5 N under the condition that another gauge pin is inserted into 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.



IEC 1868/13

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	a
E	4,55 mm	–	
F	2,9 mm	3,5 mm	
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	Radius
AD	–	0,2 mm	
AE	2,8 mm	2,95 mm	
AF	1,9 mm	2,1 mm	Radius
AG	0,3 mm	–	
AH	0,4 mm	0,55 mm	
AJ	–	0,3 mm	Radius
AM	4,45 mm	4,55 mm	See Table 20
AP	3,8 mm	4,0 mm	
BM	–	–	
BN	–	–	See Table 20
BO	12,25 mm	12,35 mm	b
BP	5,5 mm	5,7 mm	
BQ	4,6 mm	4,7 mm	
BR	11,2 mm	11,4 mm	b
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	
BW	2,2 mm	2,6 mm	
BX	1,95 mm	2,05 mm	b
BY	1,15 mm	1,25 mm	
BZ	0,3 mm	0,4 mm	
CA	0,725 mm	0,925 mm	Angle
CB	0,9 mm	1,1 mm	
CC	35°	50°	
CD	8,1 mm	9,1 mm	Diameter
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	

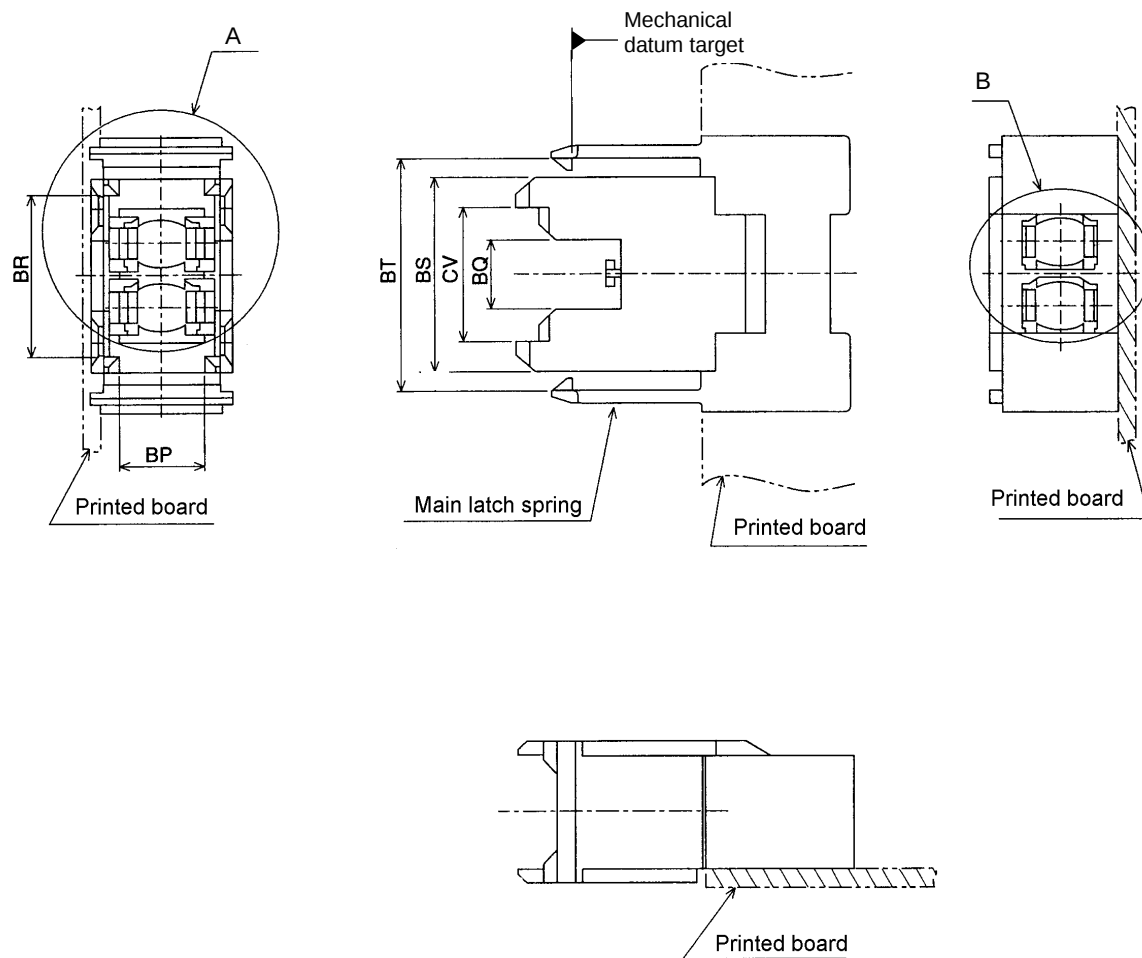
Table 19 (2 of 2)

Reference	Dimensions		Remarks
	Minimum	Maximum	
CQ	7,92 mm	8 mm	45° chamfer 45° chamfer
CR	9,37 mm	9,43 mm	
CS	0,55 mm	0,65 mm	
CT	0,55 mm	0,65 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 20 – Grade

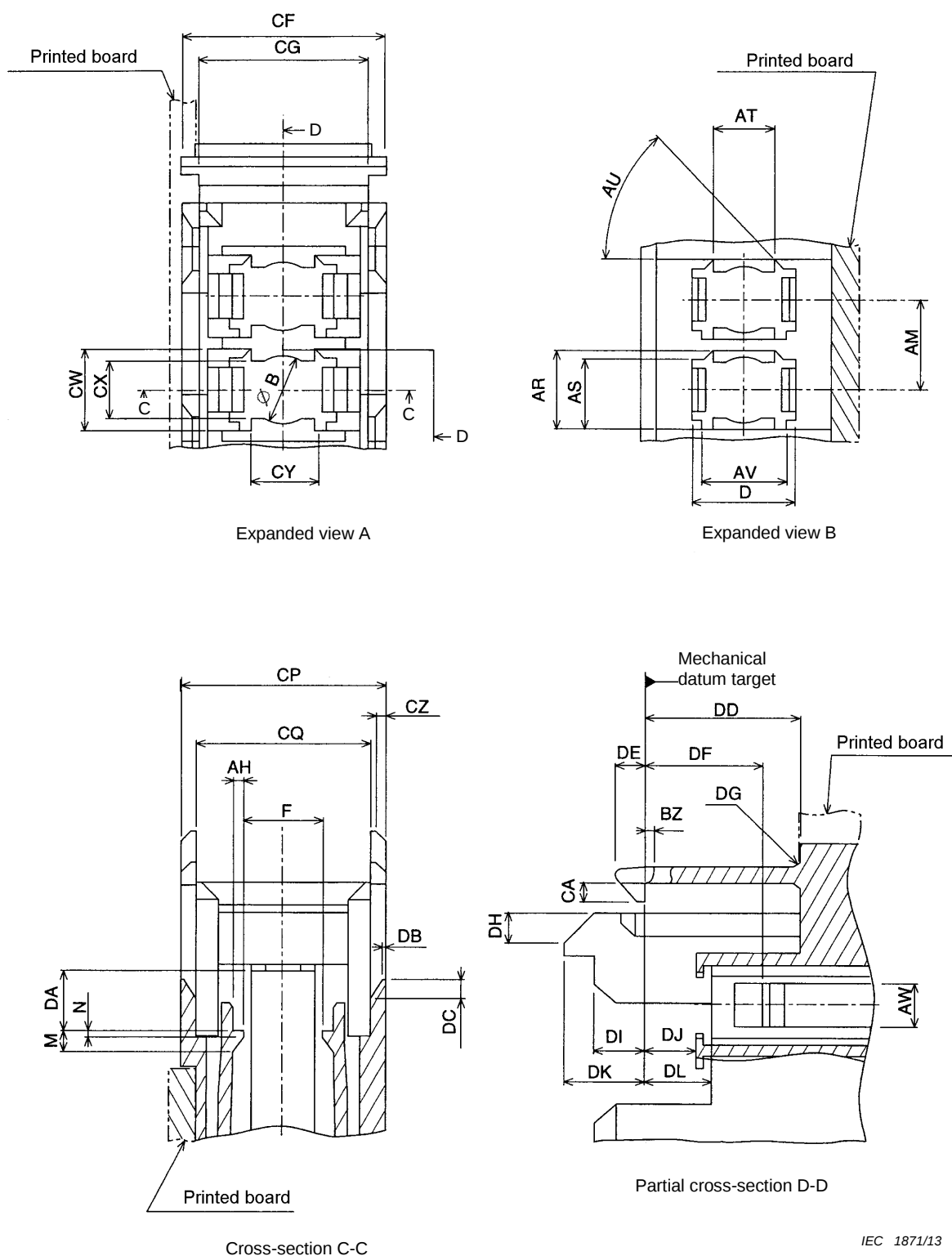
Grade	Reference	Dimensions mm		Remarks
		Minimum	Maximum	
1	BM	6	6,2	Backplane thickness 2,4 mm
	BN	2,65	2,75	
2	BM	6	6,2	Backplane thickness 3,2 mm
	BN	3,45	3,55	

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.



IEC 1870/13

Figure 10 (continued overleaf)



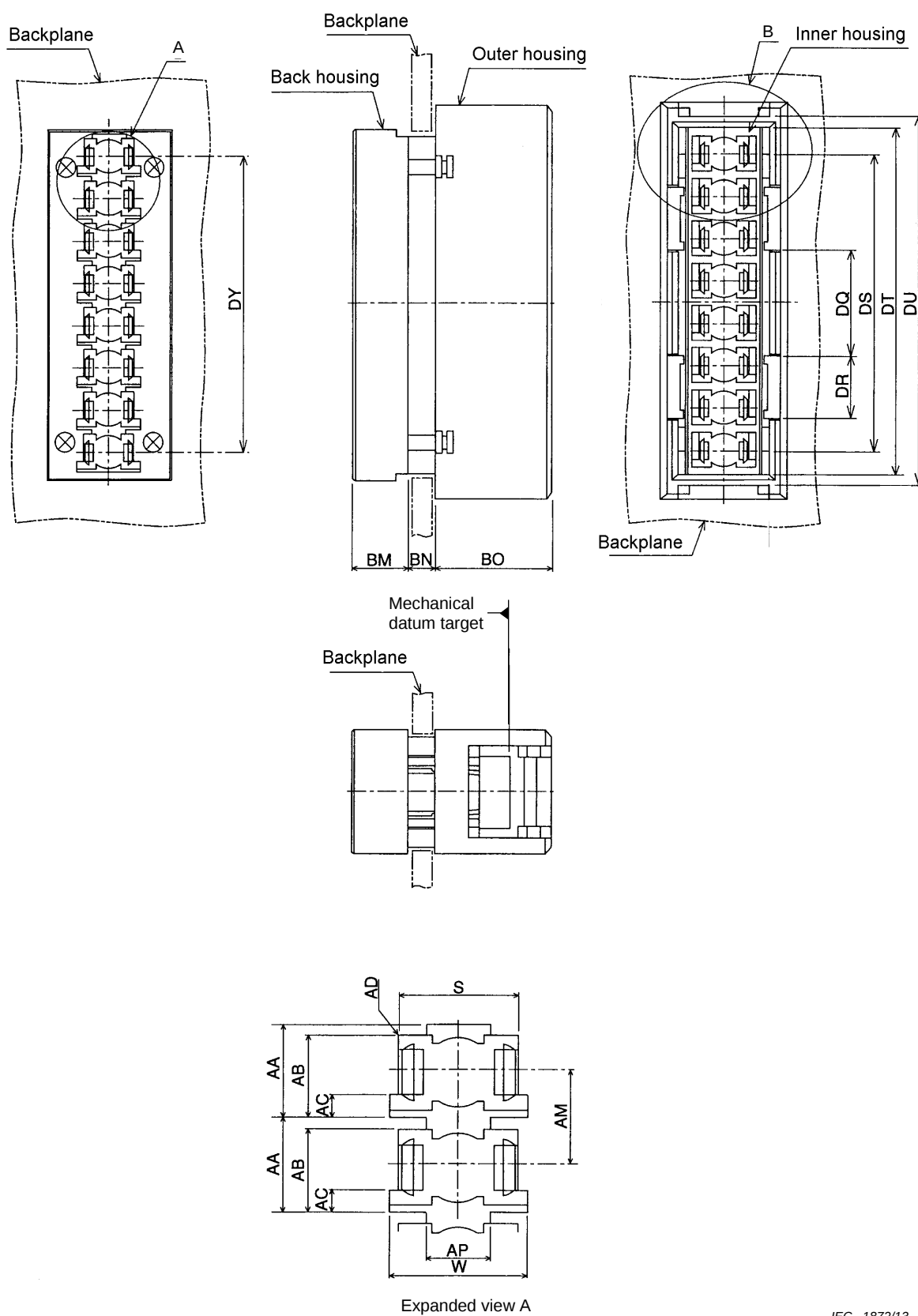
IEC 1871/13

Figure 10 – 2-port printed board housing interface

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

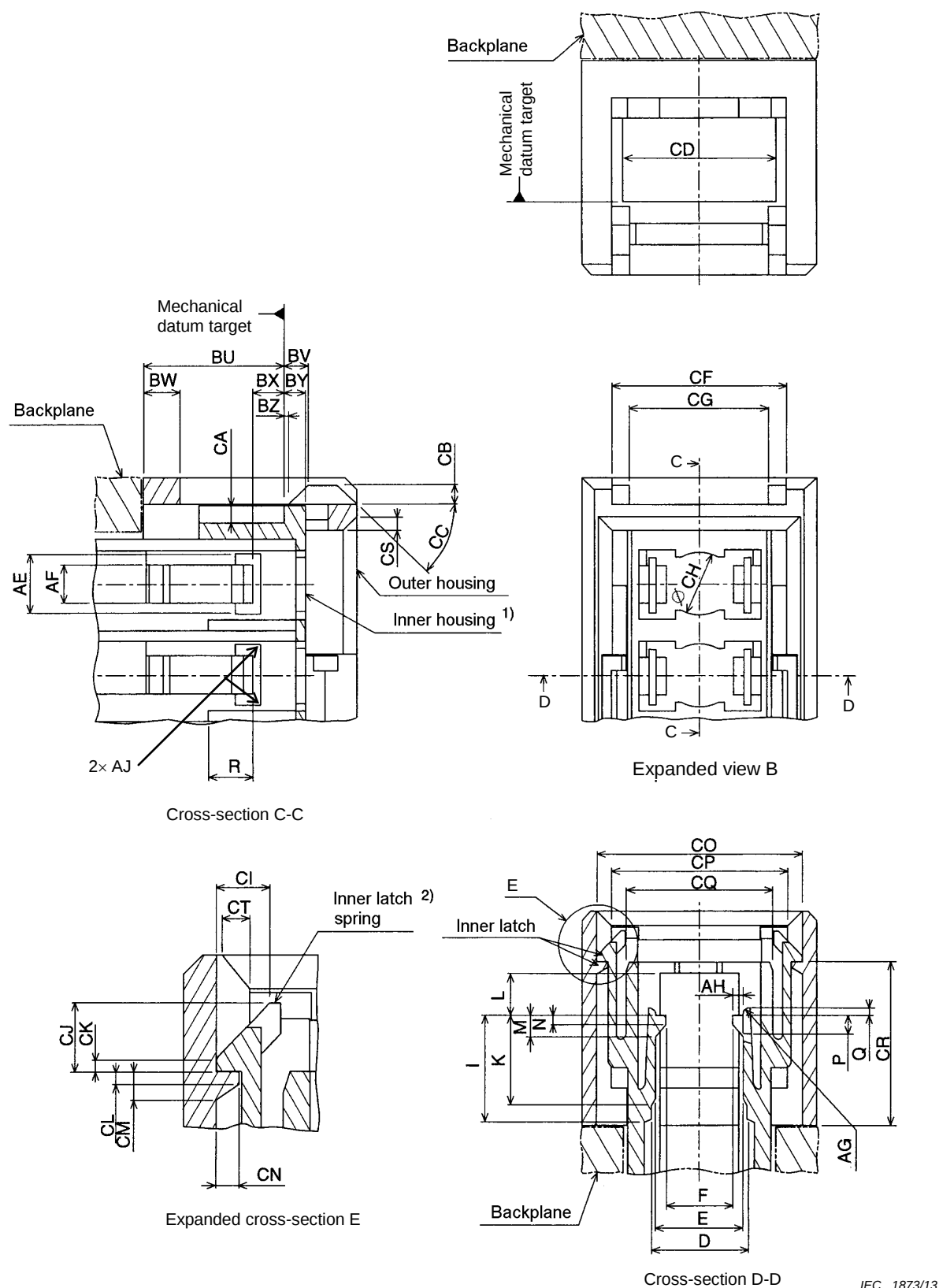
Reference	Dimensions		Remarks
	Minimum	Maximum	
B	3,07 mm	3,15 mm	Diameter ^a
D	5 mm	5,15 mm	
F	2,9 mm	3,5 mm	
M	–	1,4 mm	
N	–	0,6 mm	
AH	0,4 mm	0,55 mm	Angle
AM	4,45 mm	4,55 mm	
AR	4 mm	4,1 mm	
AS	3,25 mm	3,35 mm	
AT	2,3 mm	2,6 mm	
AU	42°	48°	
AV	4,7 mm	4,75 mm	
AW	1,7 mm	2,3 mm	
BP	5,9 mm	6,1 mm	
BQ	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	
BZ	0,3 mm	0,4 mm	
CA	0,73 mm	0,83 mm	
CF	9,8 mm	9,9 mm	45° chamfer
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	
DA	2,89 mm	2,99 mm	
DB	0,2 mm	0,3 mm	Radius 45° chamfer
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	
DH	1,45 mm	1,55 mm	
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.



IEC 1872/13

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	a
E	4,55 mm	–	
F	2,9 mm	3,5 mm	
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	Radius
AD	–	0,2 mm	
AE	2,8 mm	2,95 mm	
AF	1,9 mm	2,1 mm	Radius
AG	0,3 mm	–	
AH	0,4 mm	0,55 mm	
AJ	–	0,3 mm	Radius
AM	4,45 mm	4,55 mm	See Table 23
AP	3,8 mm	4 mm	
BM			
BN			See Table 23
BO	12,25 mm	12,35 mm	b
BU	7,72 mm	7,78 mm	
BV	1,1 mm	1,4 mm	
BW	2,2 mm	2,6 mm	b
BX	1,95 mm	2,05 mm	
BY	1,15 mm	1,25 mm	
BZ	0,3 mm	0,4 mm	Angle
CA	0,725 mm	0,925 mm	
CB	0,9 mm	1,1 mm	
CC	35°	50°	45° chamfer
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	
CT	0,55 mm	0,65 mm	45° chamfer

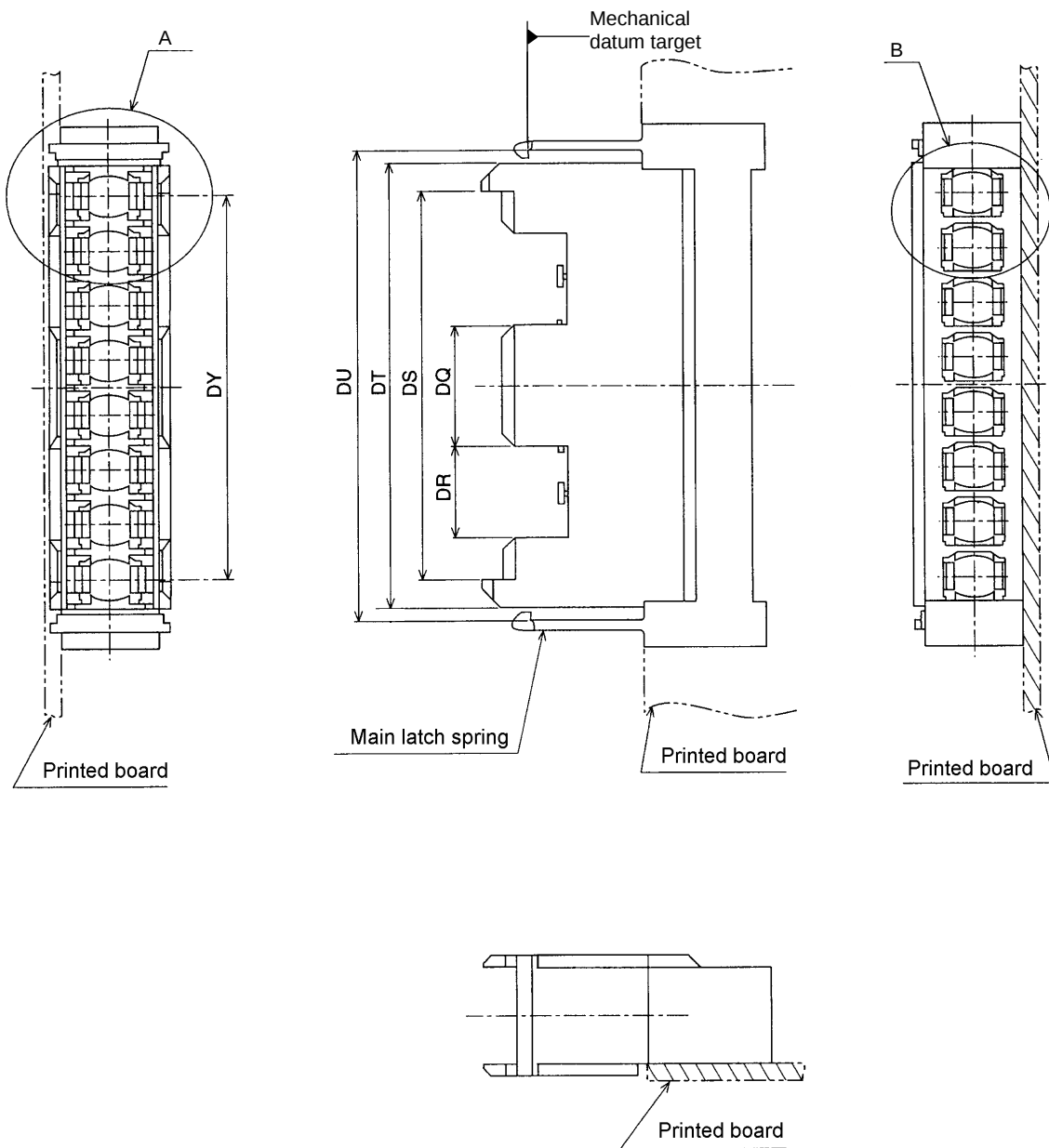
Table 22 (2 of 2)

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	6	6,2	Backplane thickness 2,4 mm
	BN	2,65	2,75	
2	BM	6	6,2	Backplane thickness 3,2 mm
	BN	3,45	3,55	

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.



IEC 1874/13

Figure 12 (continued overleaf)

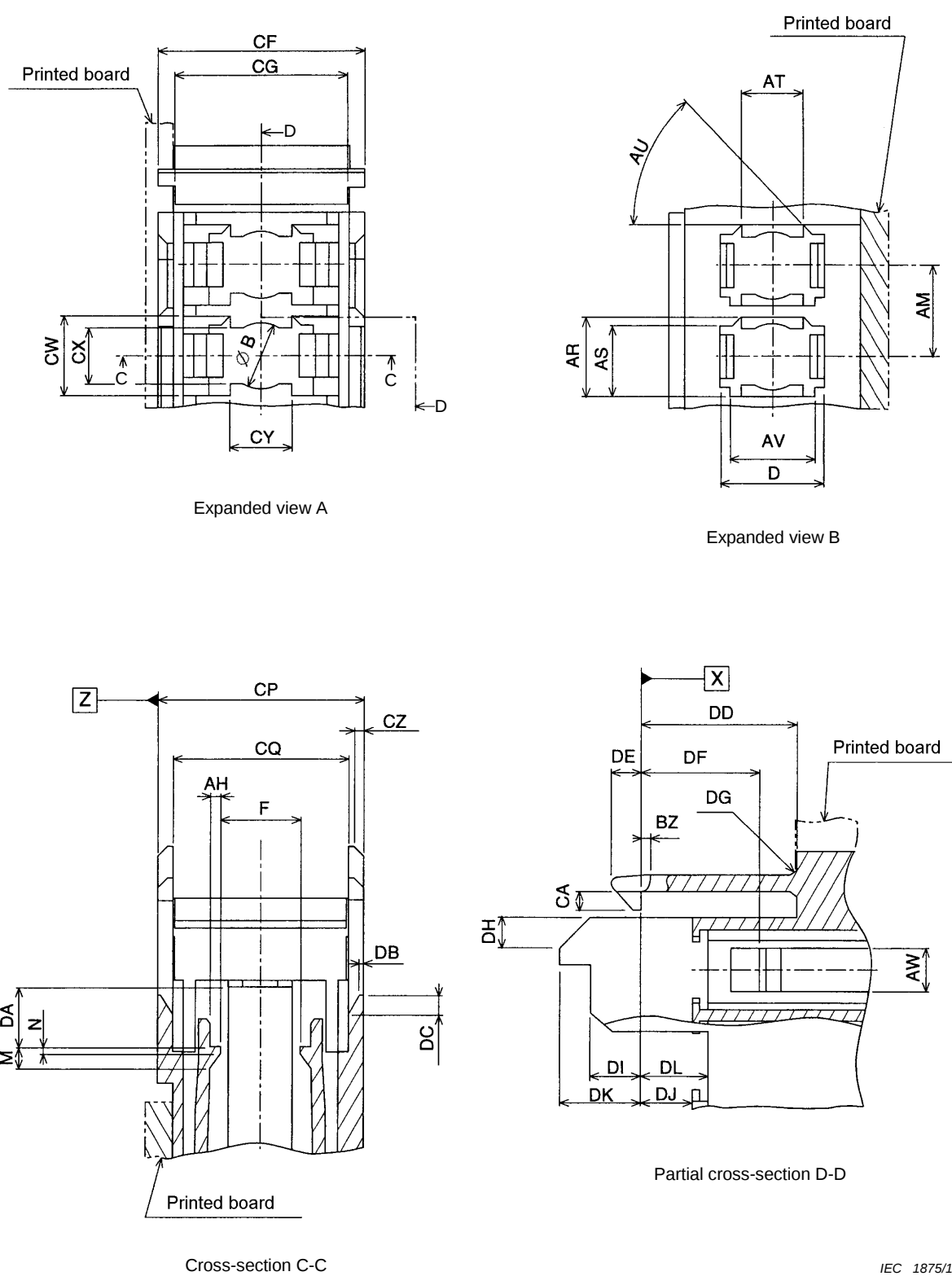


Figure 12 – 8-port printed board housing interface

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	
M	–	1,4 mm	b
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	45° chamfer
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	
DA	2,89 mm	2,99 mm	
DB	0,2 mm	0,3 mm	
DC	1 mm	1,1 mm	Radius 45° chamfer
DD	9,2 mm	9,6 mm	
DE	1,35 mm	1,45 mm	
DF	5,75 mm	5,85 mm	
DG	–	1 mm	
DH	1,45 mm	1,55 mm	
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	c
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	
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.

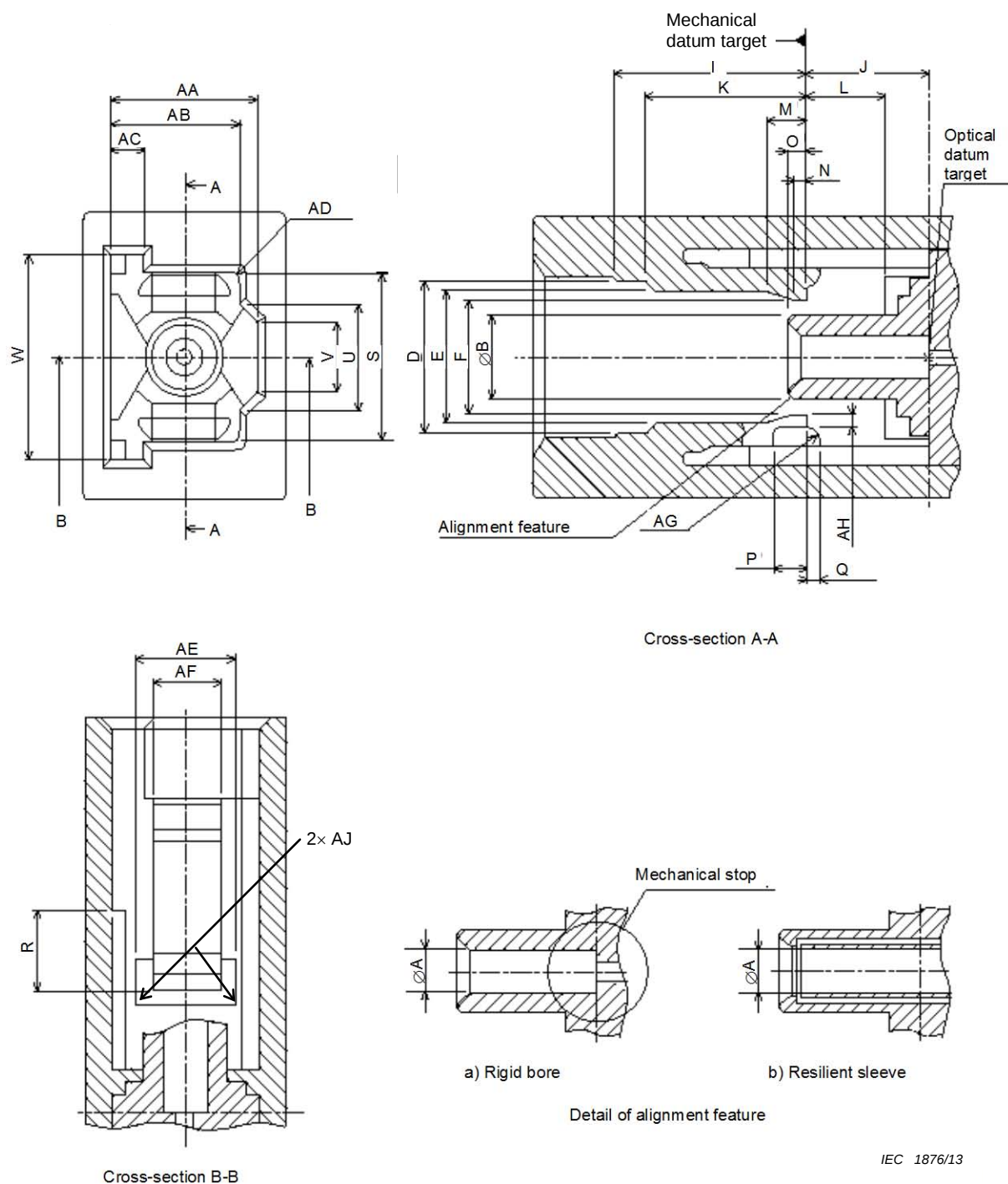


Figure 13 – Simplex active device receptacle interface

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	
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	
AE	2,8	2,95	
AF	1,9	2,1	
AG	0,3	—	
AH	0,4	0,55	
AJ	—	0,3	
^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.

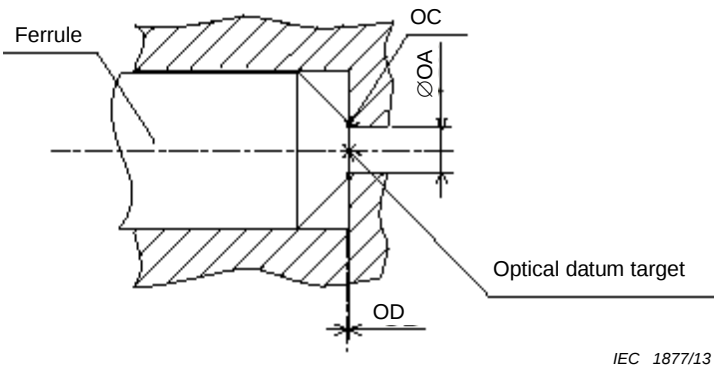


Figure 14 – Detail of the mechanical stop for rigid bore alignment feature

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.

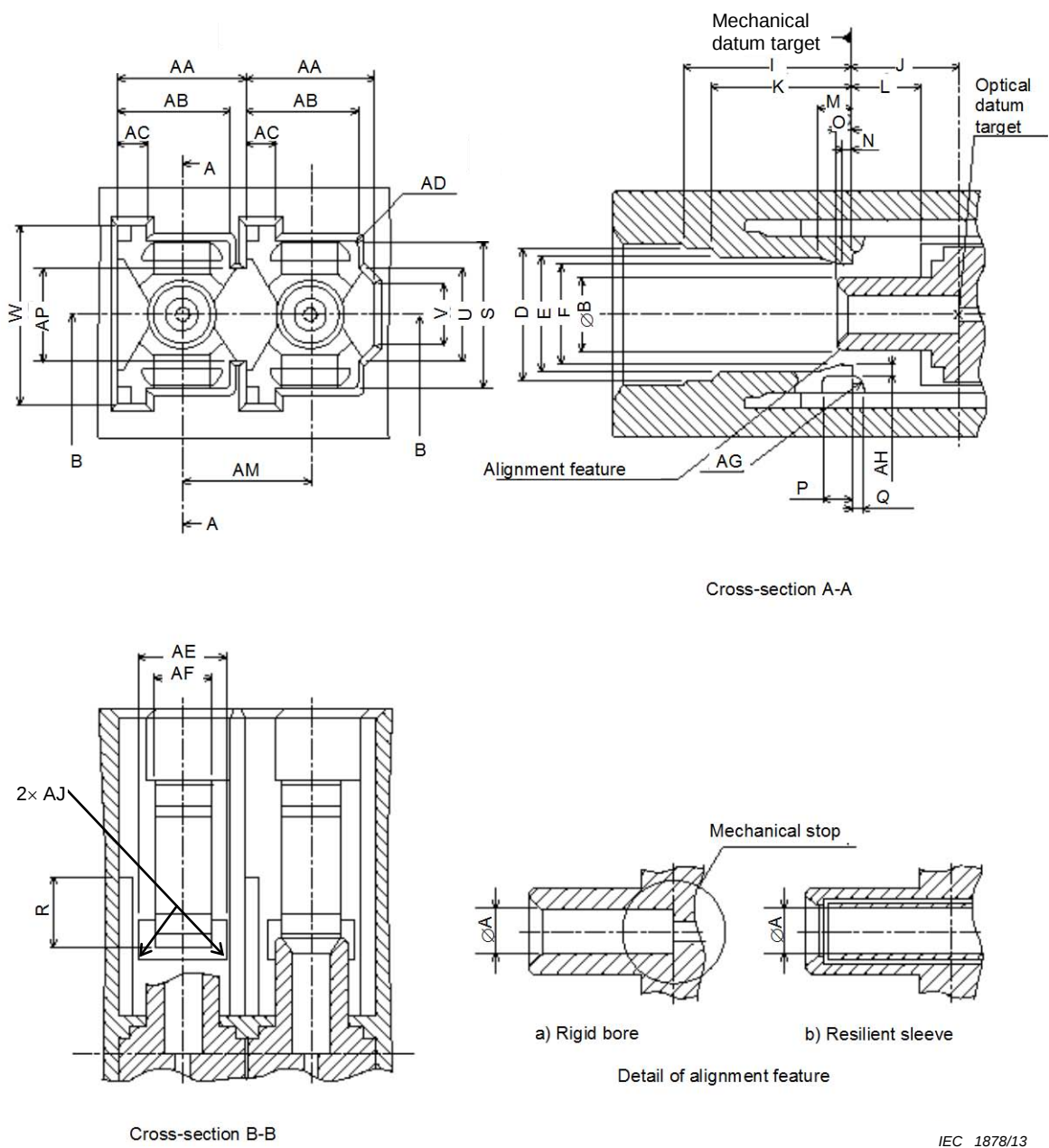


Figure 15 – 4,5 mm duplex active device receptacle interface

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	
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	Radius
V	3,3	–	
W	6,7	–	
AA	4,45	4,55	
AB	4,01	4,11	
AC	0,95	1,15	
AD	–	0,2	
AE	2,8	2,95	
AF	1,9	2,1	
AG	0,3	–	
AH	0,4	0,55	Radius
AJ	–	0,3	
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.

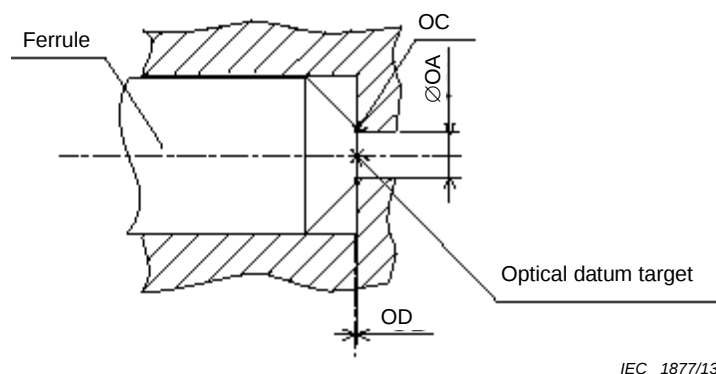


Figure 16 – Detail of the mechanical stop for rigid bore alignment feature

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

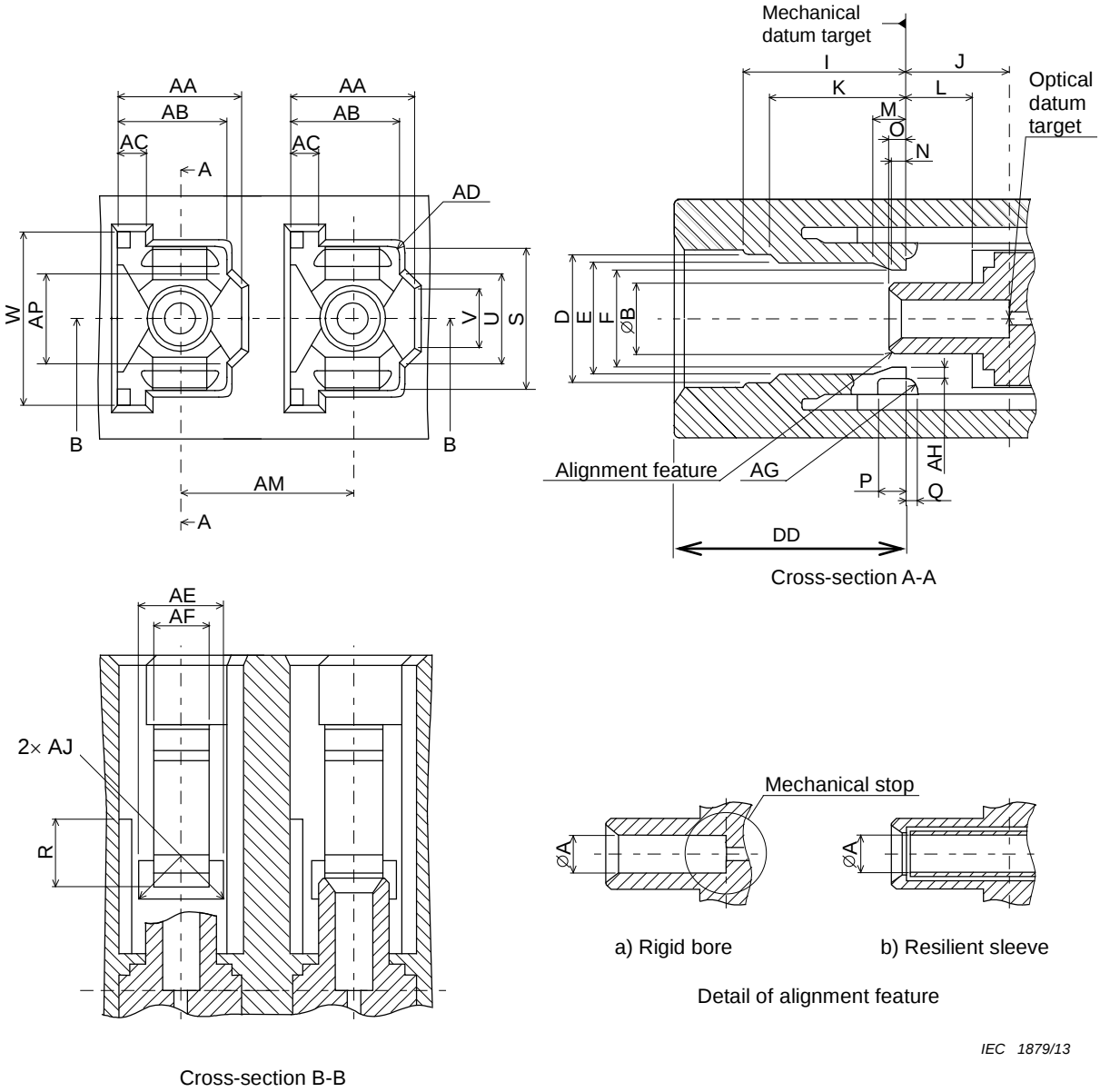
Reference	Dimensions mm		Remarks
	Minimum	Maximum	
OA	0	0,05	^a and see Table 30
OC			Radius
OD			^a and see Table 30
^a	Whatever form of mechanical stop feature is incorporated into the receptacle, it shall be capable of maintaining the optical datum target of both the fibre and the receptacle within 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.



Cross-section B-B

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	
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	Radius
V	3,3	–	
W	6,7	–	
AA	4,45	4,55	
AB	4,01	4,11	
AC	0,95	1,15	
AD	–	0,2	
AE	2,8	2,95	
AF	1,9	2,1	
AG	0,3	–	
AH	0,4	0,55	
AJ	–	0,3	
AM	6,20	6,30	
AP	3,8	4,0	
DD	8,77	9,23	

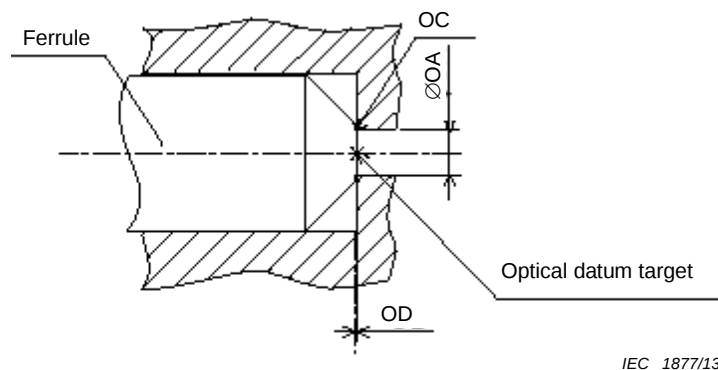
^a Dimension F should become greater than 4,5 mm when a plug is coupled to or removed from the receptacle.

^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.



IEC 1877/13

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			^a and see Table 36
OC	0	0,05	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.

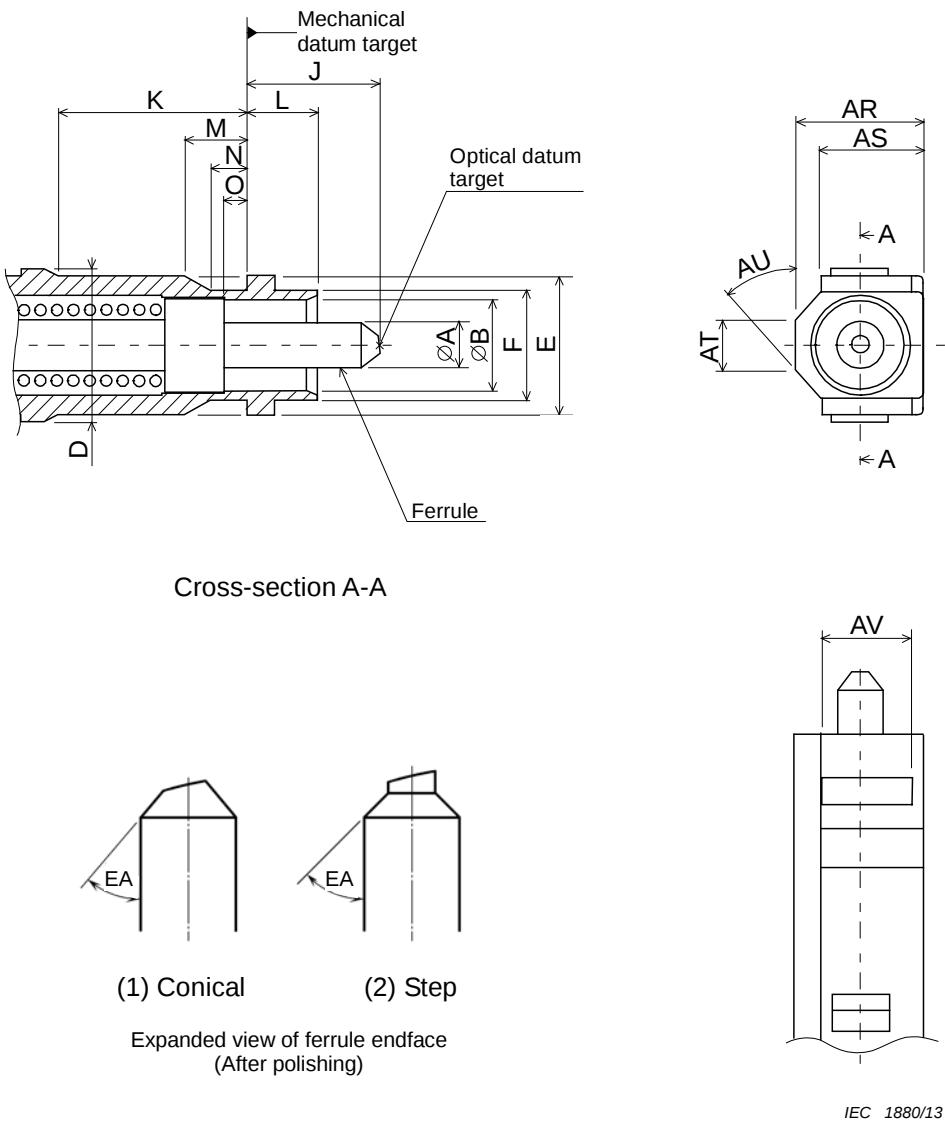
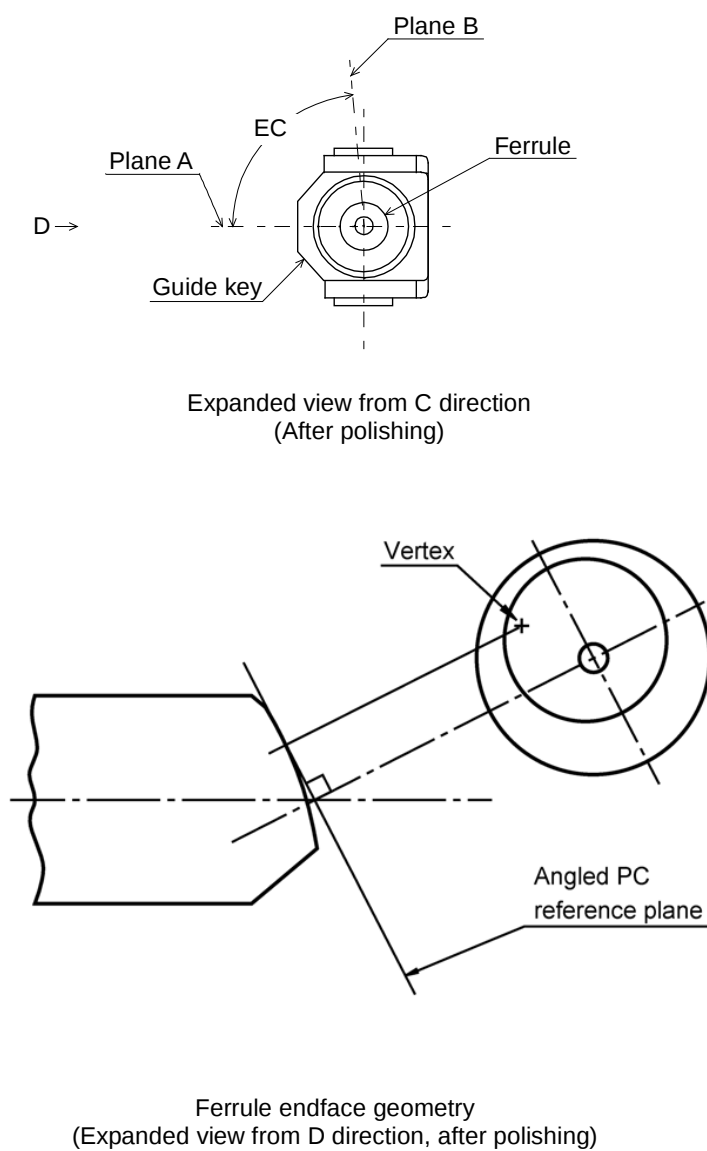


Figure 19 (continued overleaf)



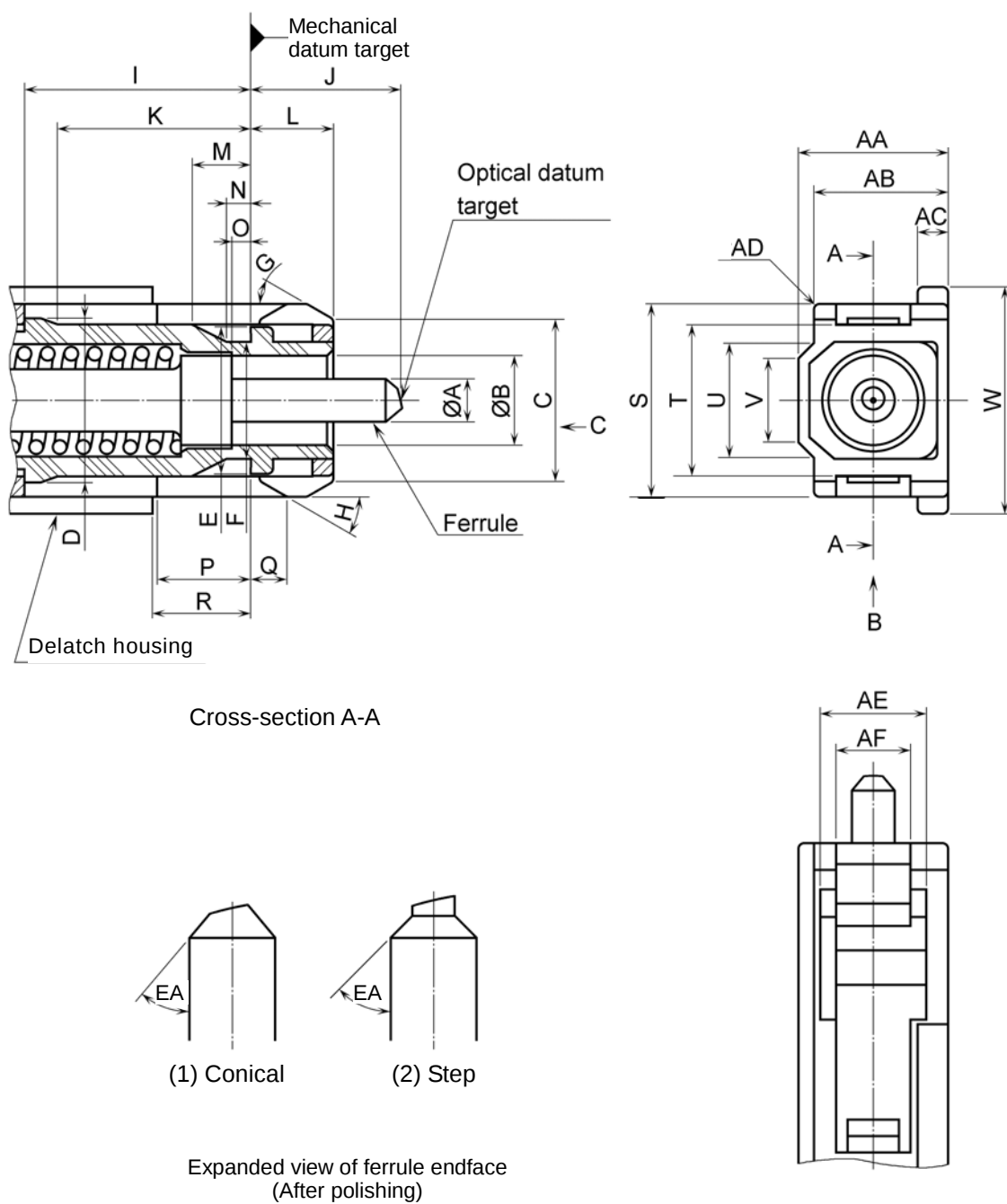
IEC 1881/13

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

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

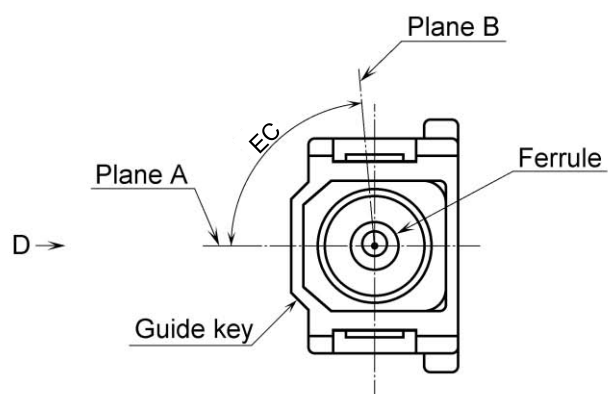
Reference	Dimensions			Remarks
	Minimum	Basic	Maximum	
A			1,2495 mm	a
B	2,6 mm		2,7 mm	
D	4,65 mm		4,75 mm	
E	4,3 mm		4,4 mm	
F	3,3 mm		3,4 mm	
J	4,2 mm		4,5 mm	b
K	5,5 mm		–	
L	2,4 mm		2,5 mm	
M	1,5 mm		–	
N	0,6 mm		–	
O	0,5 mm		–	
AR	3,65 mm		3,75 mm	
AS	2,9 mm		3,0 mm	
AT	1,7 mm		2,1 mm	
AU	43°		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.

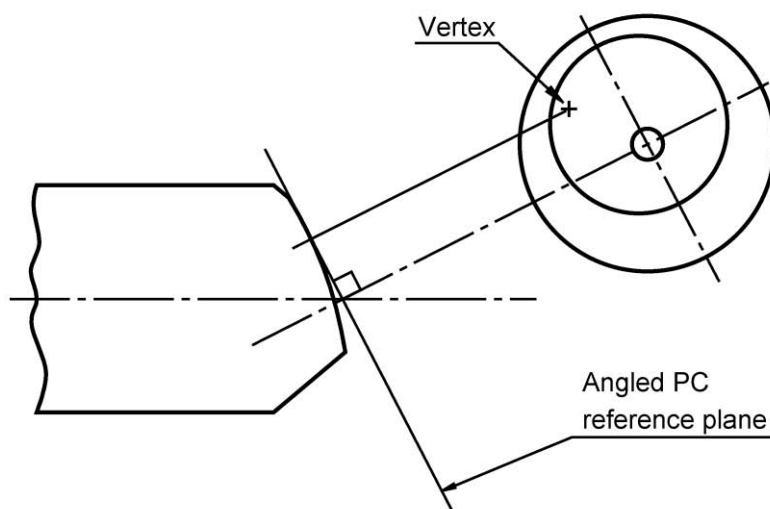


IEC 1882/13

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.

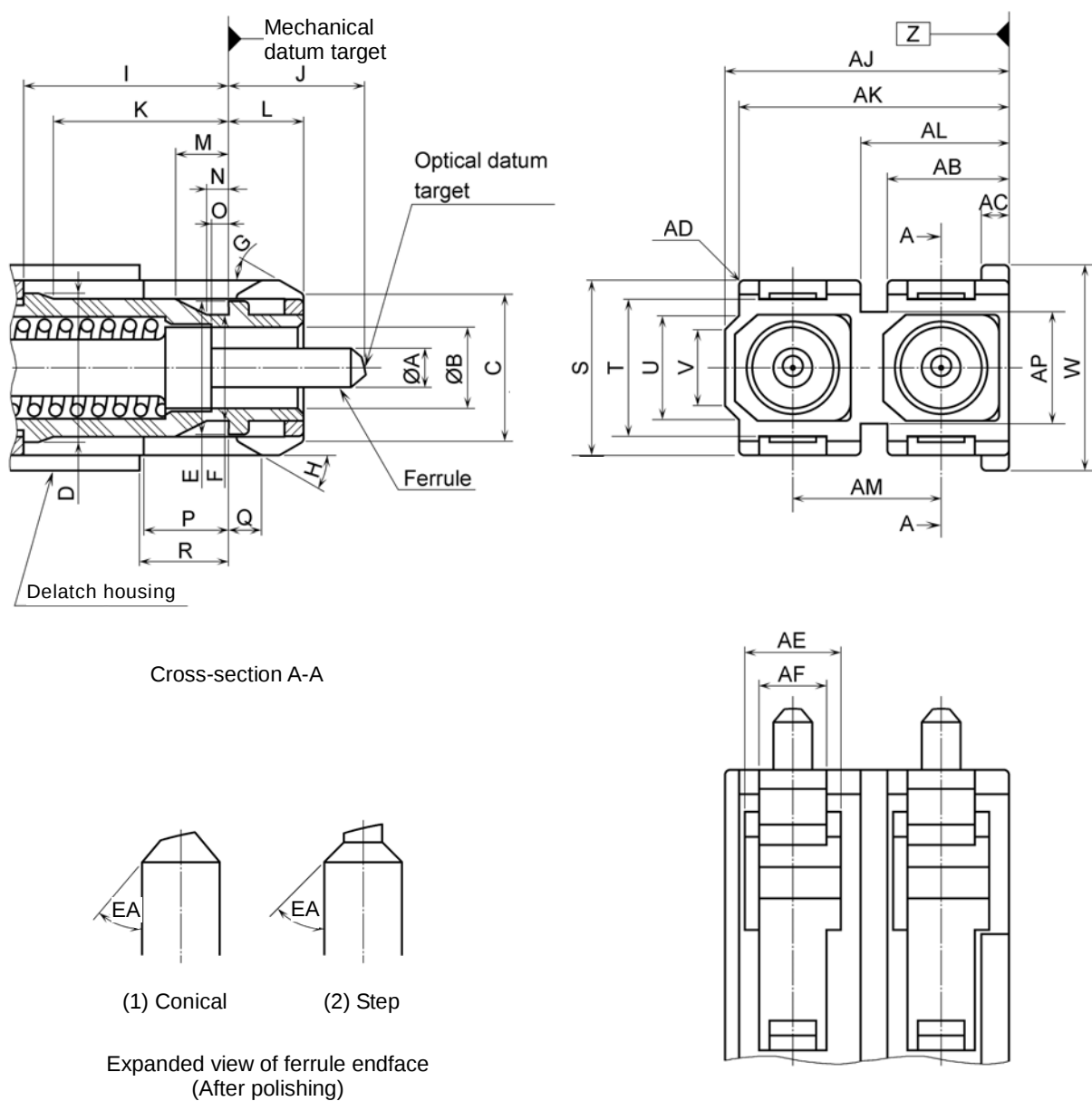
^c The dimension J is given for the plug endface when not mated. It is noticed that the ferrule is movable by a certain axial compression force with direct contacting endfaces, and therefore the dimension J is given variable. Ferrule compression force shall be 5,5 N to 6,5 N when the position of the 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.

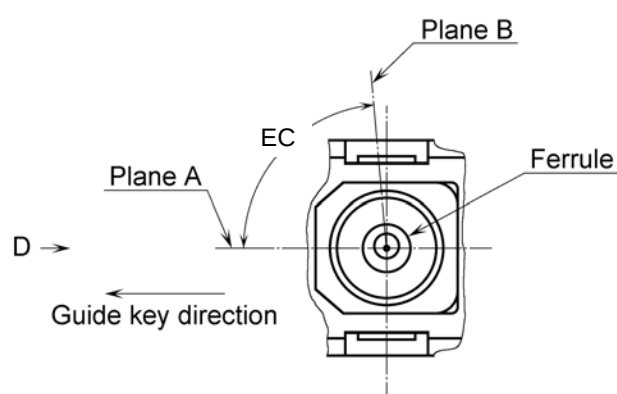
^f Dimension EA is defined as an angle between two planes: one plane, plane A, passes through the axis of the ferrule and axis of symmetry of the key of the angled endface connector plug. The other plane, plane B, passes through the axis of the ferrule and the normal to the APC reference plane.

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.

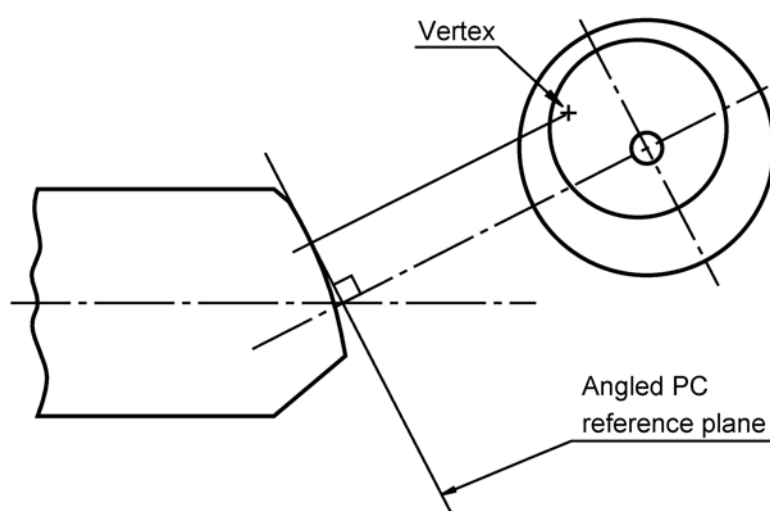


IEC 1884/13

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°	
EC	–	90°	–	

^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..

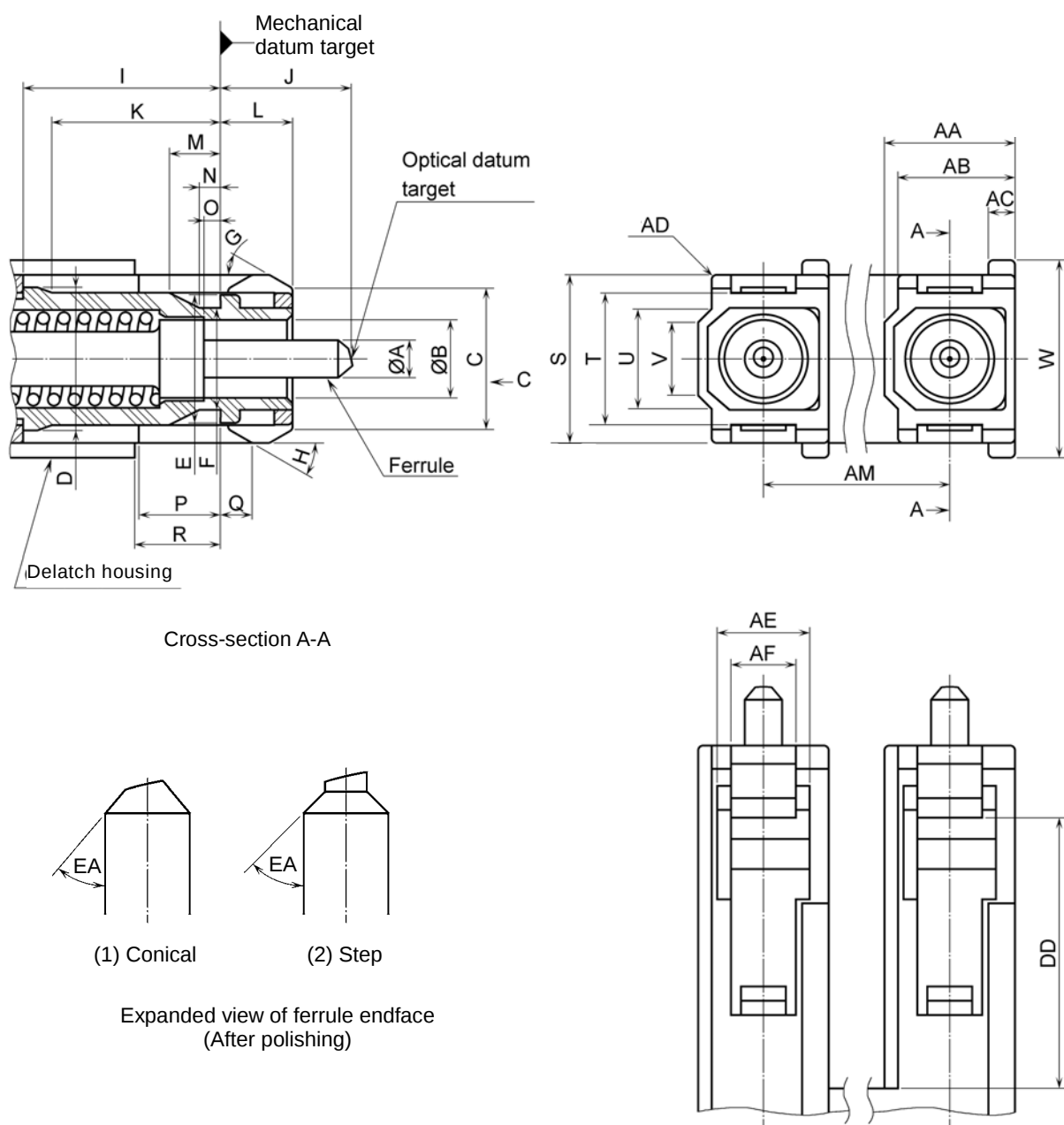
^c The dimension J is given for the plug endface when not mated. It is noticed that the ferrule is movable by a certain axial compression force with direct contacting endfaces, and therefore the dimension J is given variable. Ferrule compression force shall be 5,5 N to 6,5 N when the position of the 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.

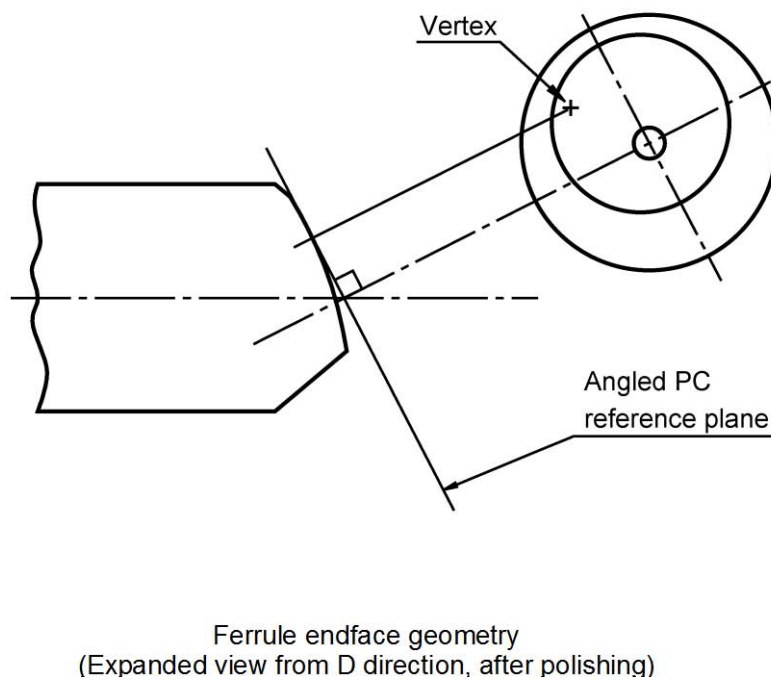
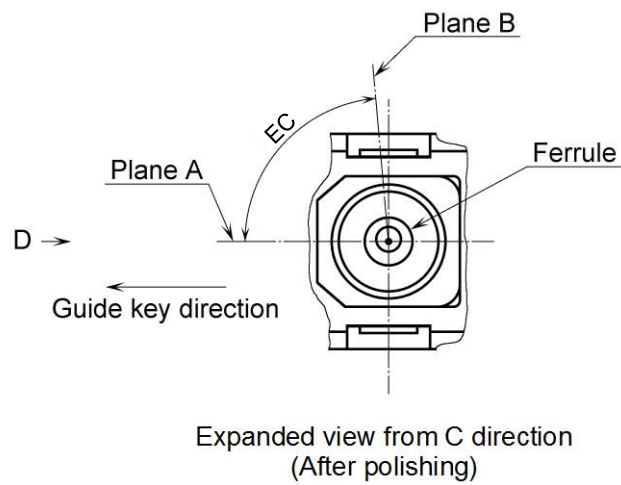
^f Dimension EC is defined as an angle between two planes: one plane, plane A, passes through the axis of the ferrule and axis of symmetry of the key of the angled endface connector plug. The other plane, plane B, passes through the axis of the ferrule and the normal to the APC reference plane.

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.



IEC 1886/13

Figure 22 (continued overleaf)



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.

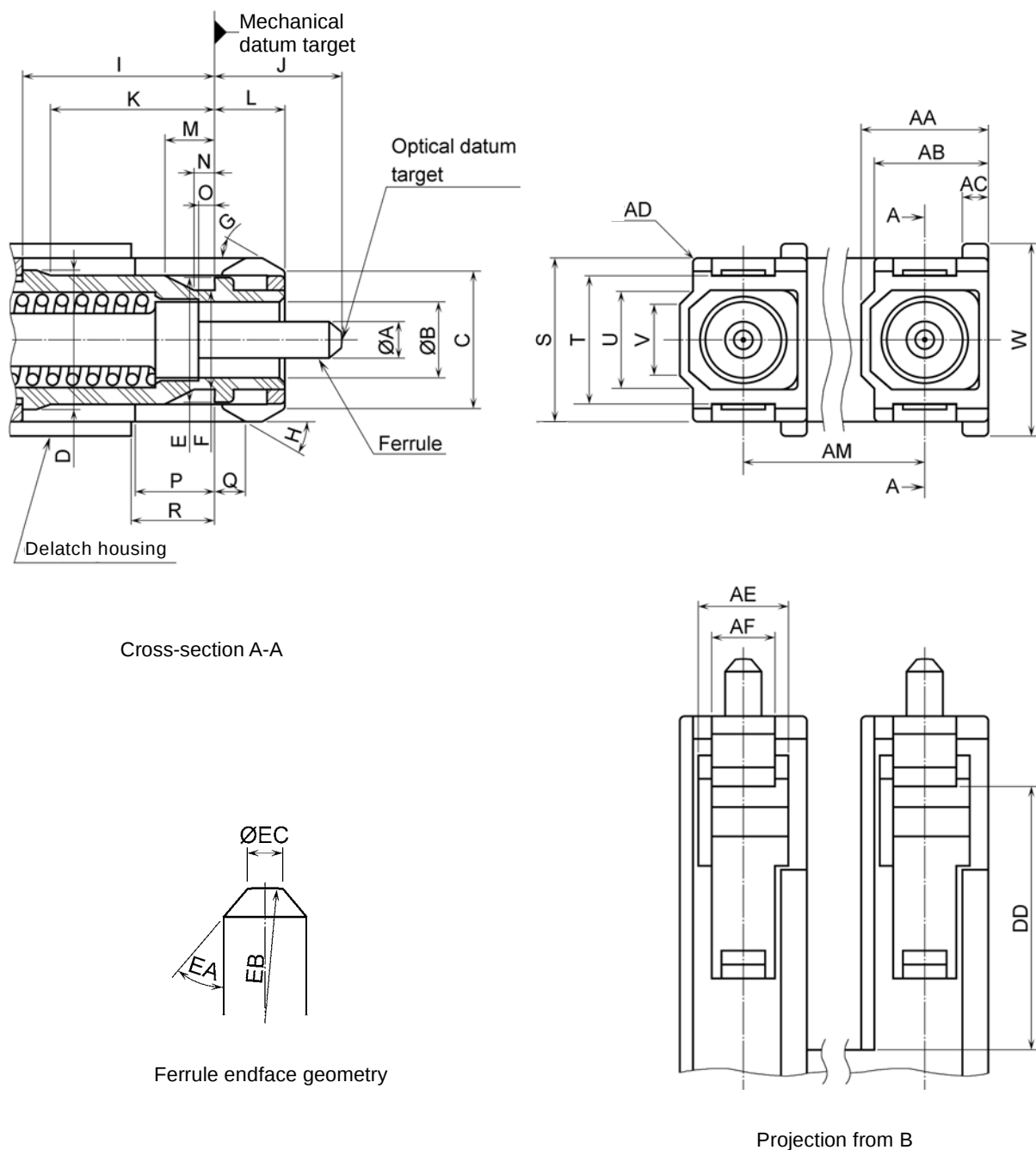
^b The coupling sleeve shall be movable toward the right and the left directions. These dimensions are given when the coupling sleeve is moved in its most right-direction position.

^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.

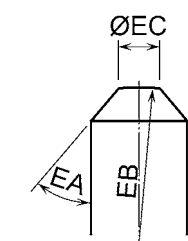
^d The right-side position of Q shall become the left-side position to the plane defined by the mechanical datum target when the coupling sleeve is moved to its most left-direction position.

^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.

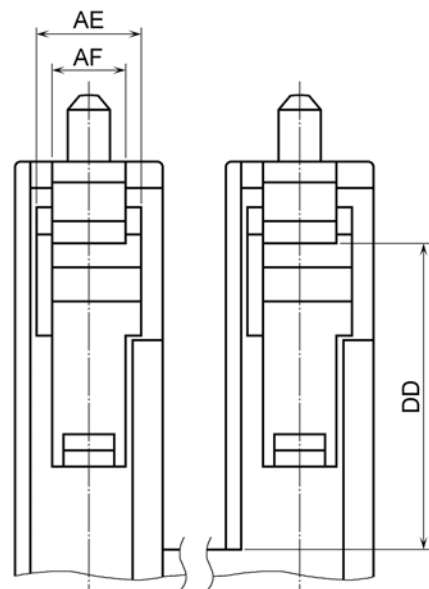
Figure 23 is an example of the 6,25 mm duplex plug connector interface – Push/pull. Table 41 gives dimensions of the 6,25 mm duplex plug connector interface – Push/pull and Table 42 gives grade of the 6,25 mm duplex plug connector interface – Push/pull.



Cross-section A-A



Ferrule endface geometry



Projection from B

IEC 1888/13

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	–	^b
P	2,6 mm	–	
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 I and Table 44 gives grade of the 6,25 mm duplex adaptor connector interface.

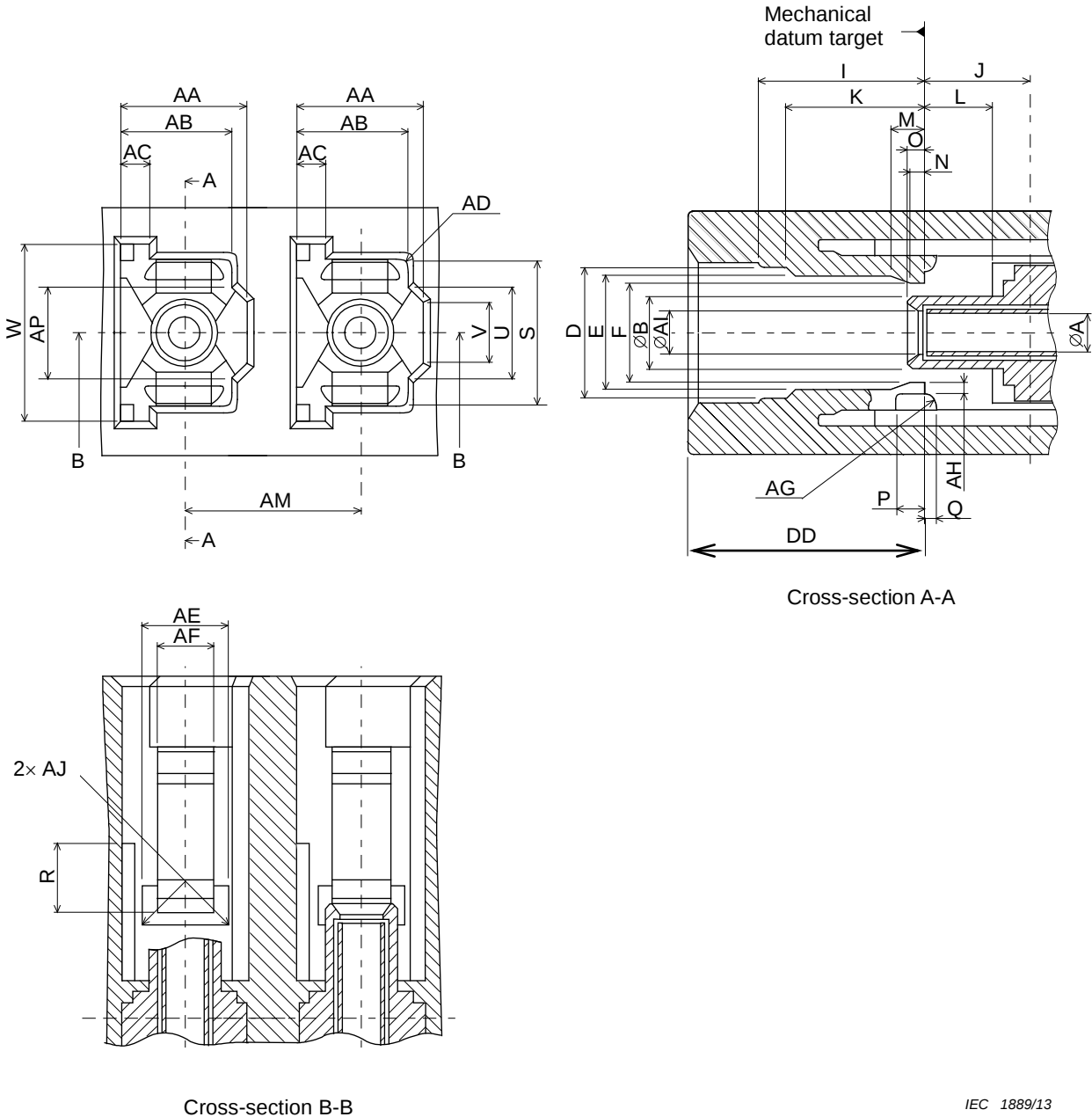


Figure 24 – 6,25 mm duplex adaptor connector interface

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

Reference	Dimensions mm		Remarks
	Minimum	Maximum	
A			See Table 44 Diameter
B	2,39	2,59	
D	4,8	5	a
E	4,55	–	
F	2,9	3,5	
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	Radius
AC	0,95	1,15	
AD	–	0,2	
AE	2,8	2,95	
AF	1,9	2,1	Radius
AG	0,3	–	
AH	0,4	0,55	
AI	1,34	1,44	
AJ	–	0,3	Diameter 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.

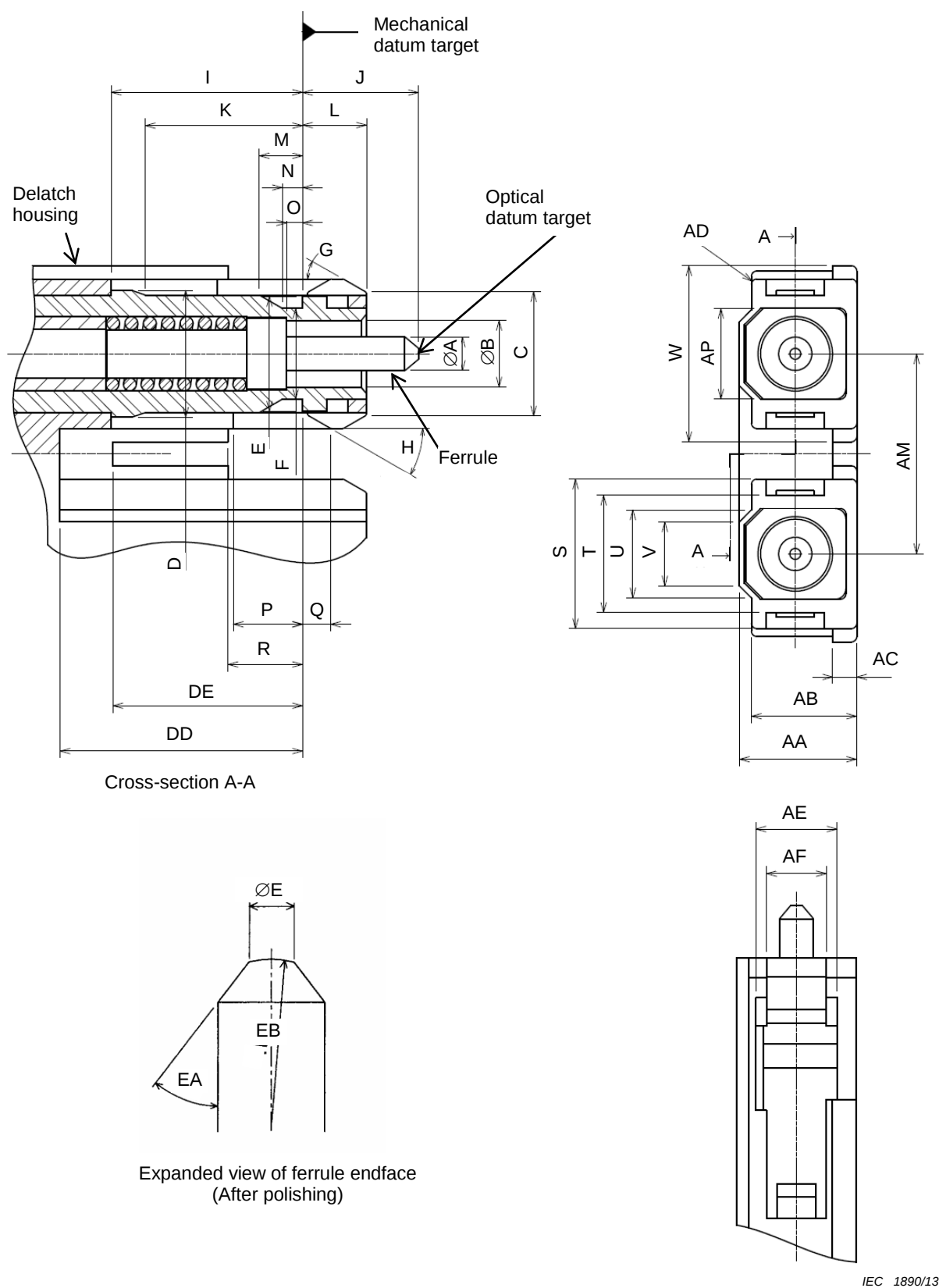
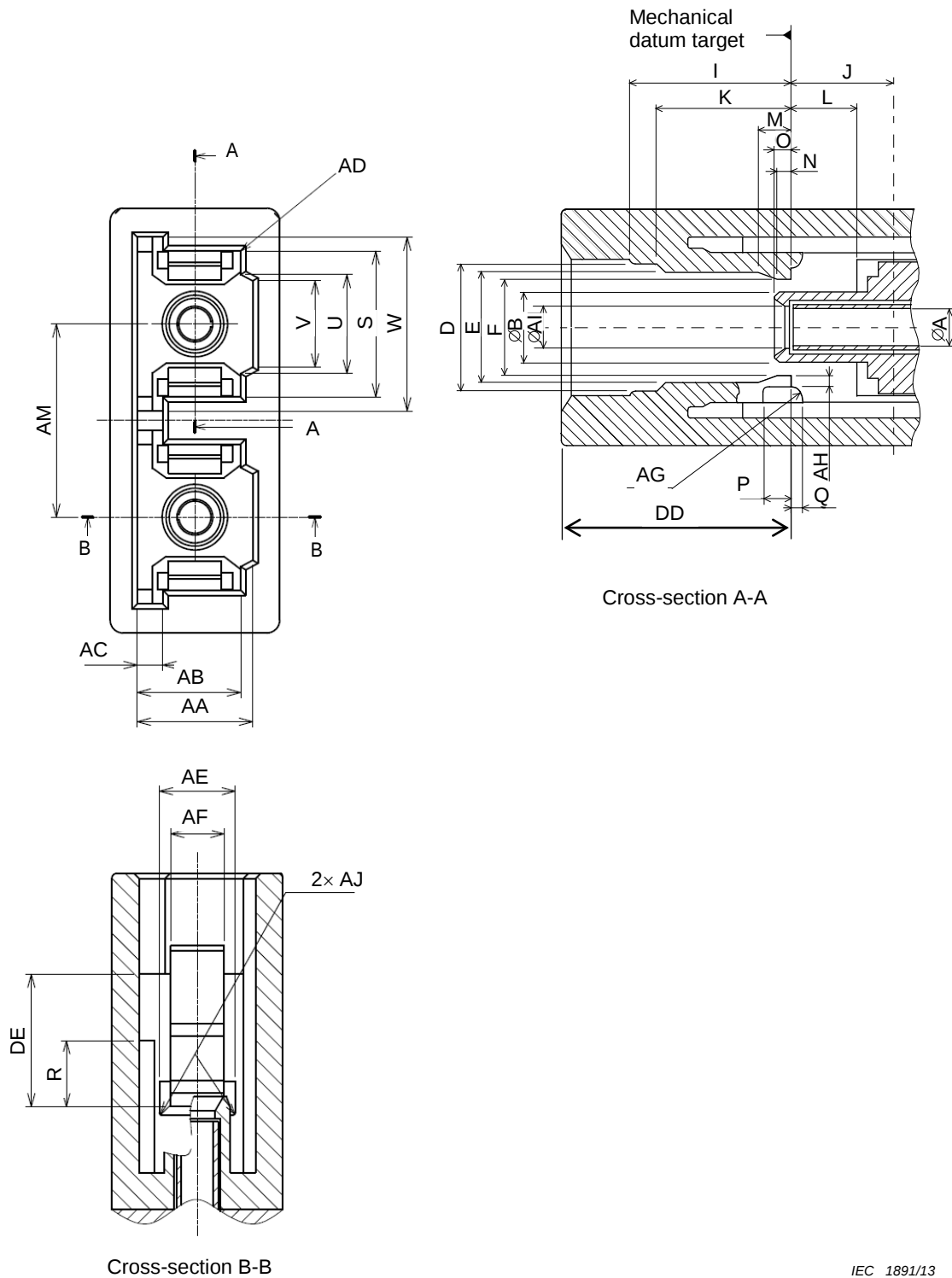


Figure 25 – Horizontal duplex plug connector interface – Push/pull

Table 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.



Cross-section B-B

IEC 1891/13

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 Diameter
B	2,39	2,59	
D	4,8	5,0	^a
E	4,55	–	
F	2,9	3,5	
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	Radius
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	

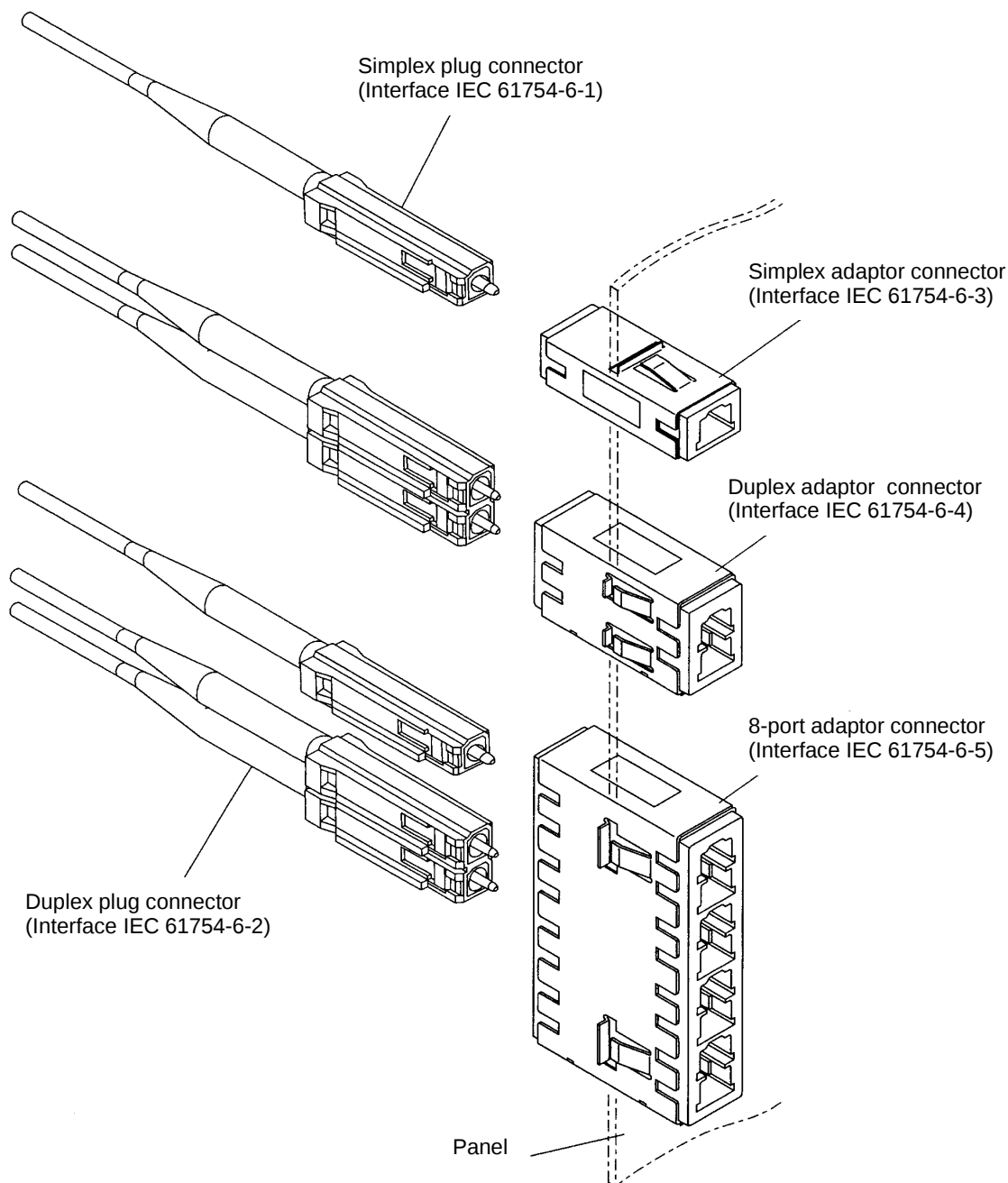
^a The dimension F shall become greater than 4,5 mm when a plug is coupled to or removed from the adaptor.

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



IEC 1892/13

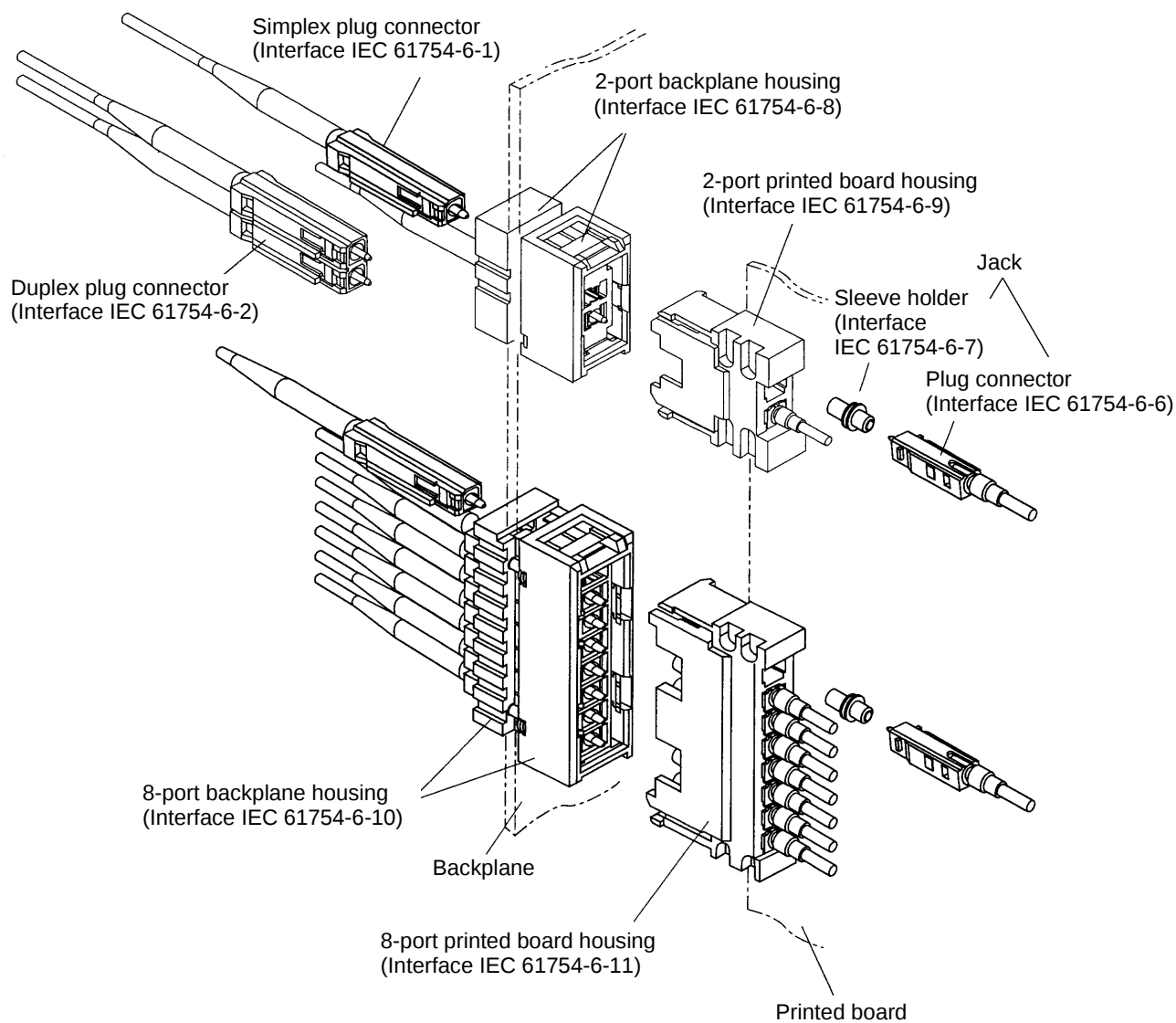
NOTE 1 Adaptors for panel use are illustrated as an example.

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



IEC 1893/13

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.

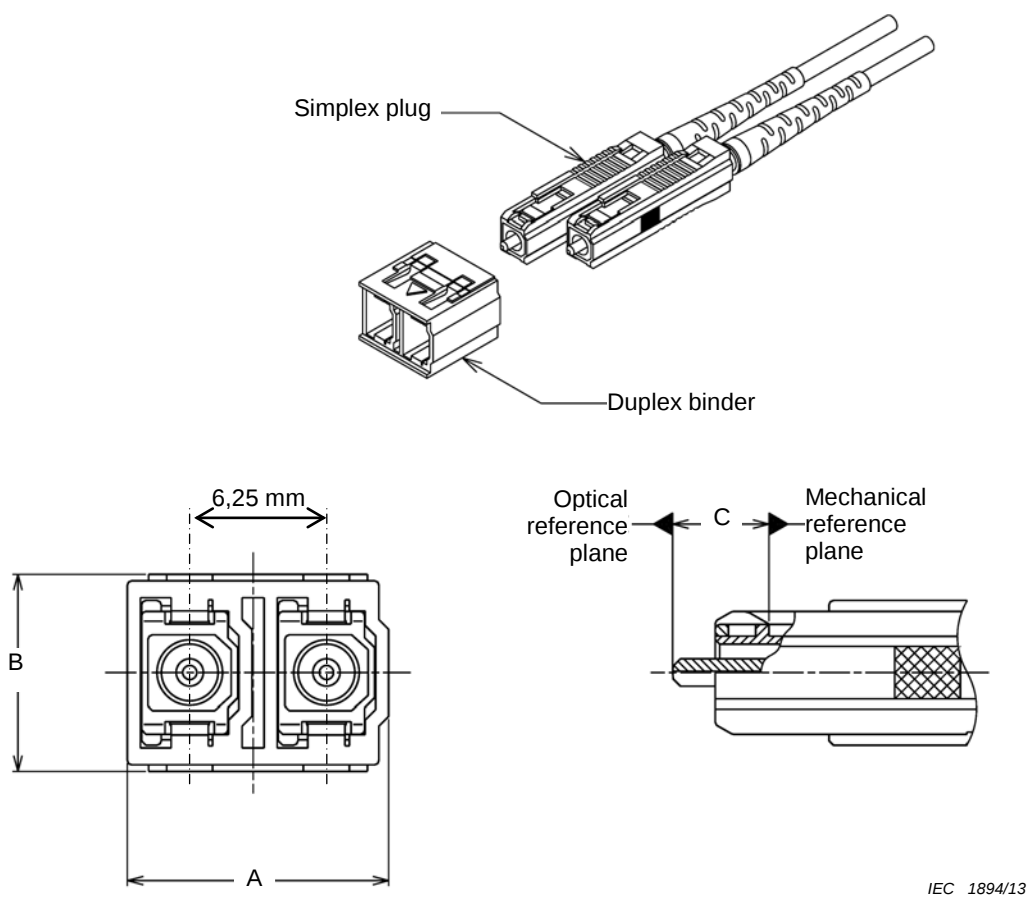


Figure C.1 – Floating 2-port connector plug

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

¹ Under consideration.

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

3, rue de Varembé
PO Box 131
CH-1211 Geneva 20
Switzerland

Tel: + 41 22 919 02 11
Fax: + 41 22 919 03 00
info@iec.ch
www.iec.ch