

INTERNATIONAL STANDARD

IEC
60874-14-9

QC 910004XX0009

First edition
1999-09

Connectors for optical fibres and cables –

Part 14-9:

Fibre optic connector type SC-APC tuned 8° terminated on single mode fibre type B1 – Detail specification

(standards.iteh.ai)

Connecteurs pour câbles et fibres optiques –

[https://standards.iteh.ai/catalog/standards/sist/5bbc5eb6-6ec4-493c-90a2-](https://standards.iteh.ai/catalog/standards/sist/5bbc5eb6-6ec4-493c-90a2-145c440be3/iec-60874-14-9-1999)

Partie 14-9:

Connecteur pour fibres optiques de type SC-APC 8° (réglé) terminé sur une fibre monomodale de type B1 – Spécification particulière



Reference number
IEC 60874-14-9:1999(E)

Numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series.

Consolidated publications

Consolidated versions of some IEC publications including amendments are available. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Validity of this publication

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology.

Information relating to the date of the reconfirmation of the publication is available in the IEC catalogue.

Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is to be found at the following IEC sources:

- **IEC web site***
- **Catalogue of IEC publications**
Published yearly with regular updates
(On-line catalogue)*
- **IEC Bulletin**
Available both at the IEC web site* and as a printed periodical

Terminology, graphical and letter symbols

For general terminology, readers are referred to IEC 60050: *International Electrotechnical Vocabulary* (IEV).

For graphical symbols, and letter symbols and signs approved by the IEC for general use, readers are referred to publications IEC 60027: *Letter symbols to be used in electrical technology*, IEC 60417: *Graphical symbols for use on equipment. Index, survey and compilation of the single sheets* and IEC 60617: *Graphical symbols for diagrams*.

* See web site address on title page.

INTERNATIONAL STANDARD

IEC 60874-14-9

QC 910004XX0009

First edition
1999-09

Connectors for optical fibres and cables –

Part 14-9: Fibre optic connector type SC-APC tuned 8° terminated on single mode fibre type B1 – Detail specification

(standards.iteh.ai)

Connecteurs pour câbles et fibres optiques –

[https://standards.iteh.ai/catalog/standards/sist/5bbc5eb6-6ec4-493c-90a2-](https://standards.iteh.ai/catalog/standards/sist/5bbc5eb6-6ec4-493c-90a2-440be3/iec-60874-14-9-1999)

Partie 14-9:

*Connecteur pour fibres optiques de type SC-APC 8° (régulé)
terminé sur une fibre monomodale de type B1 –
Spécification particulière*

© IEC 1999 — Copyright - all rights reserved

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 the publisher.

International Electrotechnical Commission
Telefax: +41 22 919 0300

3, rue de Varembe Geneva, Switzerland
e-mail: inmail@iec.ch IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE

R

For price, see current catalogue

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONNECTORS FOR OPTICAL FIBRES AND CABLES –
Part 14-9: Fibre optic connector type SC-APC tuned 8°
terminated on single mode fibre type B1 –
Detail specification**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International standard may be the subject of patent rights.

International Standard IEC 60874-14-9 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

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

FDIS	Report on voting
86B/1223/FDIS	86B/1259/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 not been drafted in complete accordance with the ISO/IEC Directives, Part 3.

The QC number that appears on the front cover of this publication is the specification number in the IEC Quality Assessment System for Electronic Components (IECQ).

The references to clauses or subclauses of IEC 60874-1 indicated in this part apply to the third edition of IEC 60874-1.

The committee has decided that the contents of this publication will remain unchanged until 2012. At this date, the publication will be

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

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

iTeh STANDARD PREVIEW (standards.iteh.ai)

[IEC 60874-14-9:1999](https://standards.iteh.ai/catalog/standards/sist/5bbc5eb6-6ec4-493c-90a2-595dec440be3/iec-60874-14-9-1999)

<https://standards.iteh.ai/catalog/standards/sist/5bbc5eb6-6ec4-493c-90a2-595dec440be3/iec-60874-14-9-1999>

CONNECTORS FOR OPTICAL FIBRES AND CABLES

Part 14-9: Fibre optic connector type SC-APC tuned 8° terminated on single mode fibre type B1 – Detail specification

NATIONAL STANDARDS ORGANIZATION:

.....
Date

DETAIL SPECIFICATION IEC QC 910004XX0009
 FIBRE OPTIC COMPONENT OF ASSESSED QUALITY IN ACCORDANCE WITH

- GENERIC SPECIFICATION: QC 910000 (IEC 60874-1)
- BLANK DETAIL SPECIFICATION: QC 910004 (IEC 60874-1-1)

CONNECTOR SET FOR OPTICAL FIBRES AND CABLES

CLASSIFICATION:

Type: Name: SC/APC 8° angle (tuned)
 Configuration: plug-adapter-plug
 Coupling: push-pull
 Control dimensions:
 – Plug: see figures 1, 2, 3 and 4
 – Adaptor: see IEC 60874-14-3

Arrangement: patchcord arrangement

Style: Fibre retention: as required
 Cable retention: as required
 Optical coupling: butting
 Alignment: resilient sleeve alignment

Variants: see page 10

Climatic category: 10/60/4

Environmental category: 4

Assessment level: A

QUALIFICATION PROCEDURE: Fixed sample procedure

SAFETY WARNING: Take care when handling small diameter optical fibre to prevent puncturing the skin, especially in the eye area. Direct viewing of the end of an optical fibre when it is propagating energy is not recommended unless prior assurance is obtained as to the safe energy output level.

Applicable fibre cable information

Mode field diameter	In accordance with IEC 60793-2
Cladding diameter	In accordance with IEC 60793-2
Buffer diameter	(250 ± 15) µm, (500 ± 30) µm, (900 ± 50) µm
Jacket outer diameter	As required per variant
Fibre cut-off wavelength	1 100 nm – 1 280 nm

Additional information

– Attenuation in random connection:
 less than 0,60 dB (99 % probability)
 less than 0,15 dB (average)

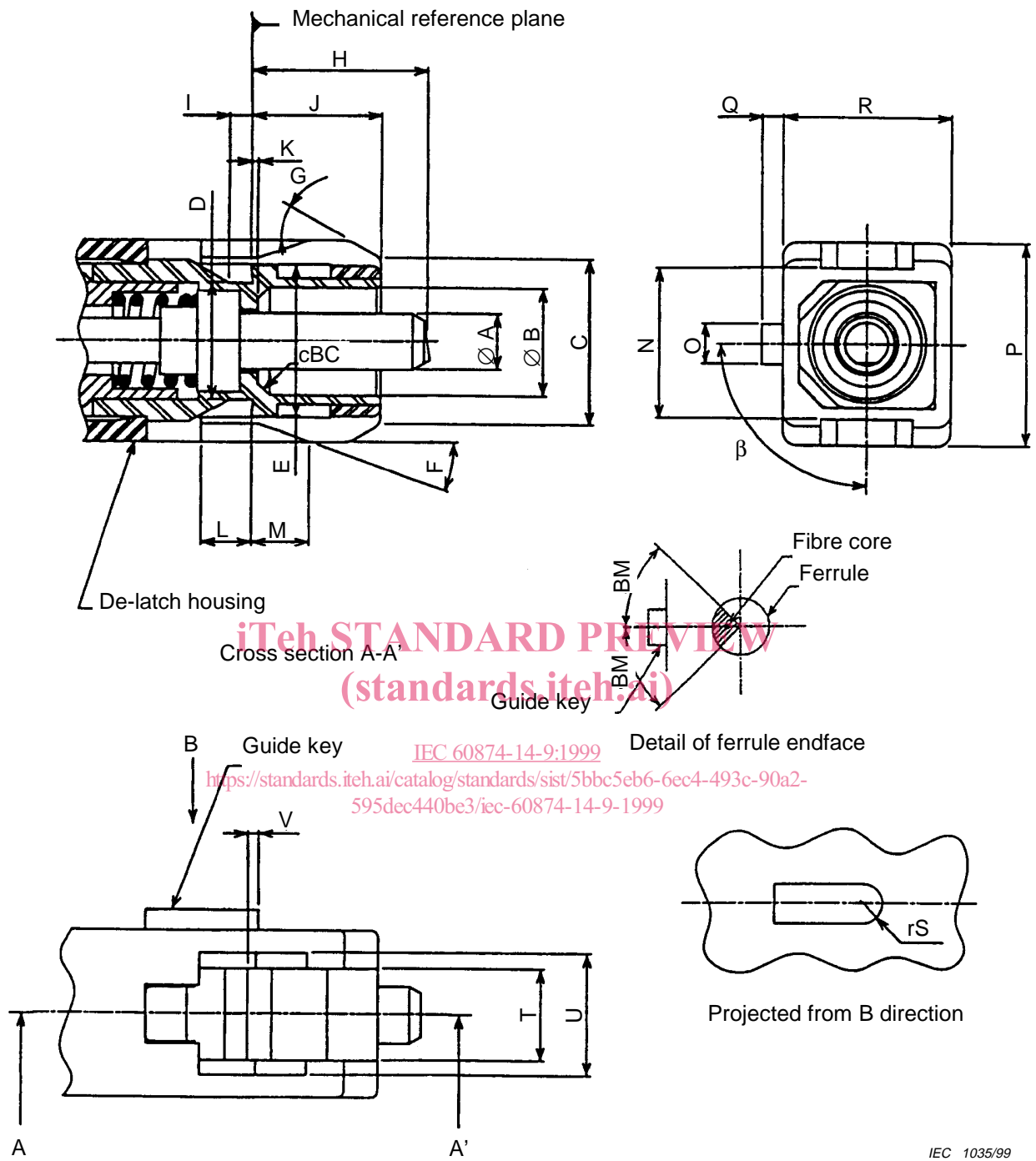


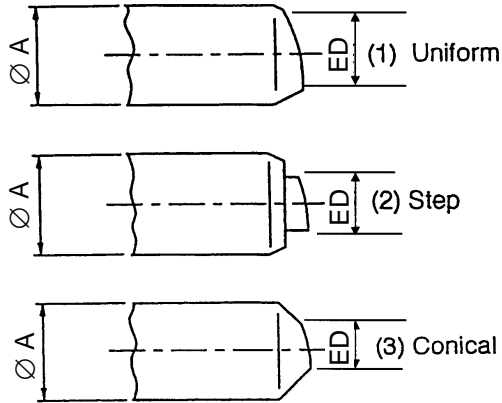
Figure 1 – Plug mating face dimensions

Reference	Dimensions		Notes
	Minimum	Maximum	
A	2,4985 mm	2,4995 mm	
B	4,80 mm	4,90 mm	
C	6,80 mm	7,40 mm	
D	4,90 mm	5,30 mm	
E	6,70 mm	6,80 mm	
F	19°	23°	
G	25°	35°	
H	7,15 mm	7,50 mm	1, 2
I	0,80 mm	1,20 mm	
J	5,30 mm	5,50 mm	
K	- 0,10 mm	0,05 mm	
L	2,11 mm	2,50 mm	
M	2,00 mm	2,80 mm	
N	6,60 mm	6,80 mm	
O	1,60 mm	1,80 mm	
P	8,89 mm	8,99 mm	
Q	0,80 mm	1,00 mm	
R	7,29 mm	7,39 mm	
rS	0,80 mm	0,90 mm	Radius
T	4,05 mm	4,15 mm	
U	5,40 mm	5,60 mm	
V	0 mm	0,50 mm	
cBC	0 mm	0,50 mm	Chamfer
BM	0 mm	45°	6

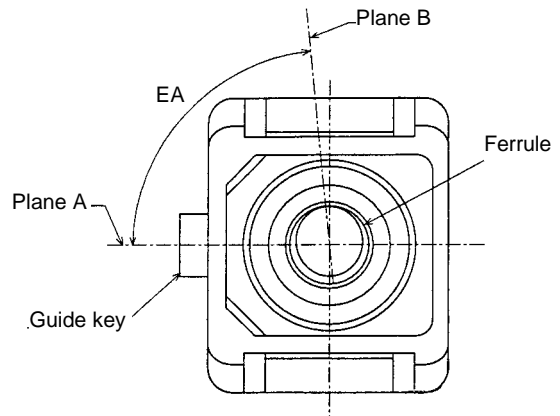
NOTES

- Ferrule compression force shall be from 7,8 N to 11,8 N, when the ferrule is compressed to a point where H is 7 mm ± 0,1 mm.
- This value shows the dimension after the ferrule is polished and in the unmated condition.
- Where a tolerance of form is not specified, the limits of the dimensions for a feature control the form as well as the size.
- Where interrelated features of size (features shown with a common axis or centre plane) have no geometric tolerance of location or run-out specified, the limits of the dimensions for a feature control the location tolerance as well as the size.
- Where perpendicular features (features shown at right angles) have no geometric tolerance of orientation or run-out specified, the limits of the dimensions for a feature control the orientation tolerance as well as the size.
- The dimension "BM" means the adjusting angle of the core centre ferrule centre relative to the keying direction. These dimensions shall be measured according to IEC 61300-2-41.

Figure 1 – Plug mating face dimensions (concluded)



IEC 1036/99



IEC 1037/99

Figure 2a – Expanded view of ferrule endface

Figure 2b – Expanded view from C direction

iTeh STANDARD PREVIEW

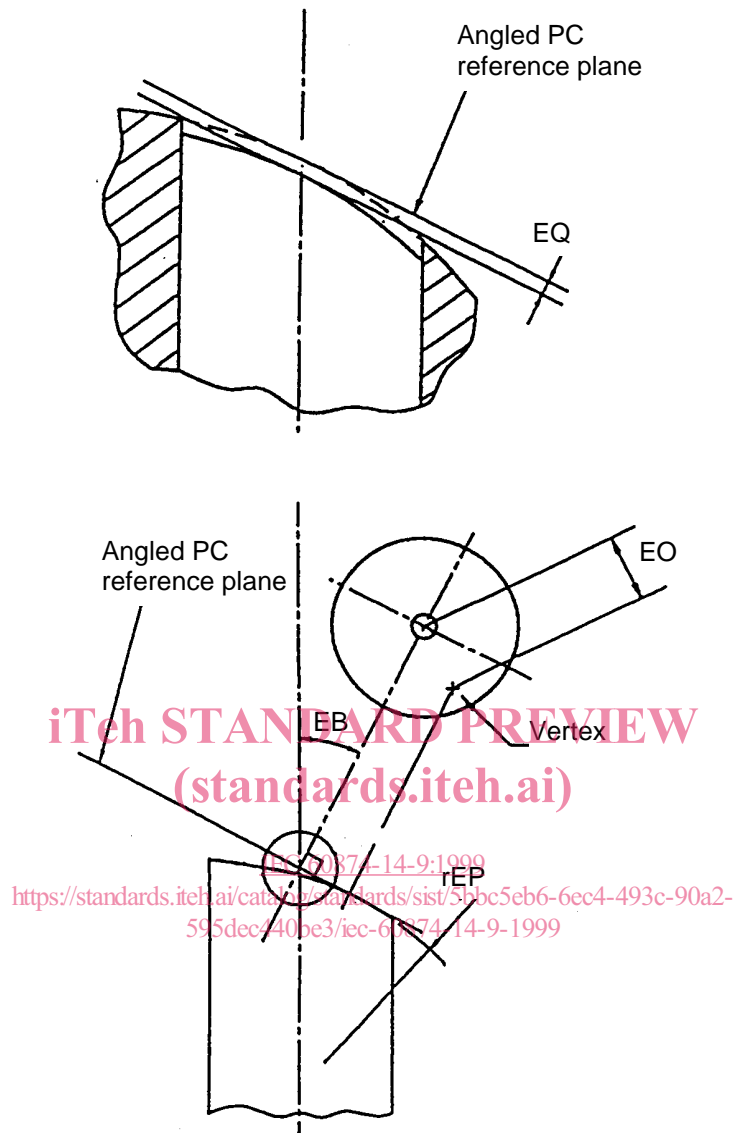
(standards.iteh.ai)

Reference	Dimensions mm			Notes
	Minimum	Nominal	Maximum	
EA		90°		1
ED	0,80		1,70	Diameter, 2

NOTES

- The dimension EA is defined as an angle between two planes: one plane, plane A, through the axis of the ferrule and the axis of symmetry of the guide key. The other plane, plane B, passes through the axis of the ferrule and the normal to the angle PC reference plane.
- The shape of the ferrule end shall be one of shape (1), (2) or (3).

Figure 2 – Ferrule endface radius and typical shape



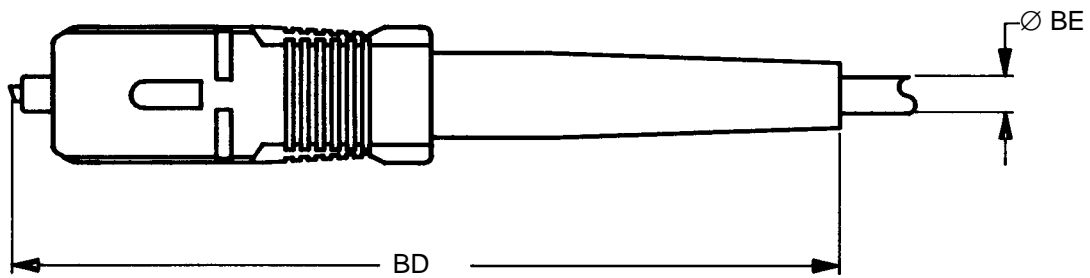
IEC 1038/99

Reference	Dimension			Notes
	Minimum	Nominal	Maximum	
EB		8°		1
EO	0 mm		0,05 mm	2
rEP	5,00 mm		12,00 mm	3, radius
EQ	-0,0001 mm		0,0001 mm	3 and 4

NOTES

- 1 When used with 1 300 nm zero dispersion single-mode fibre this range of endface angle will ensure return loss of greater than 55 dB at wavelengths of 1 310 nm or 1 550 nm even when the connector is unmated. However, when applied to *dispersion shifted fibre*, lesser return loss values in the unmated condition will be seen.
- 2 The dome eccentricity EO is defined as a distance between the ferrule centre and the vertex of the spherically polished endface relative to the angled PC reference plane. This dimension shall be measured in both extreme positions when the ferrule is rotated in the connector.
- 3 The radius and fibre undercut shall be measured in all directions over a diameter of 0,25 mm. The minimum as well as the maximum value shall be within specified limits.
- 4 The negative dimension refers to the fibre protrusion.

Figure 3 – Ferrule endface geometry after termination



IEC 1039/99

Reference	Dimension mm			Notes
	Minimum	Nominal	Maximum	
BD			60	
BE	2,20			1
BE	2,60			2
BE	2,90			3
BE	3,20			4

NOTES

- 1 This value is applicable to the variant number 1001 and 1002.
- 2 This value is applicable to the variant number 1003 and 1004.
- 3 This value is applicable to the variant number 1005 and 1006.
- 4 This value is applicable to the variant number 1007 and 1008.

Figure 4 – Plug dimension