IEC 61169-42

Edition 1.0 2013-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Radio-frequency connectors –
Part 42: Sectional specification for CQN series quick lock RF coaxial connectors

Connecteurs pour fréquences radioélectriques –
Partie 42: Spécification intermédiaire pour connecteurs coaxiaux R.F. à verrouillage rapide, série CQN

IEC 61169-42:2013

IEC Central Office
3, rue de Varembé
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It also gives information on projects, replaced and withdrawn publications.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.

A propos de la CEI

La Commission Electrotechnique Internationale (CEI) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications CEI

Le contenu technique des publications de la CEI est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Liens utiles:

Recherche de publications CEI - www.iec.ch/searchpub

La recherche avancée vous permet de trouver des publications CEI en utilisant différents critères (numéro de référence, texte, comité d'études,…).
Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

Just Published CEI - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications de la CEI. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne au monde de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans les langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (VEI) en ligne.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

IEC 61169-42

Edition 1.0 2013-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Radio-frequency connectors –
Part 42: Sectional specification for CQN series quick lock RF coaxial connectors

Connecteurs pour fréquences radioélectriques –
Partie 42: Spécification intermédiaire pour connecteurs coaxiaux R.F. à verrouillage rapide, série CQN

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE
CODE PRIX U

ICS 33.120.30

ISBN 978-2-83220-910-3

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIO-FREQUENCY CONNECTORS –

Part 42: Sectional specification for CQN series quick lock RF coaxial connectors

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.

International Standard IEC 61169-42 has been prepared by subcommittee 46F: R.F. and microwave passive components, of IEC technical committee 46: Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories.

This first edition cancels and replaces the first edition of IEC/PAS 61169-42 published in 2009.

This bilingual version (2013-06) corresponds to the monolingual English version, published in 2013-01.

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

CDV	Report on voting
46F/142/CDV	46F/165/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

The French version of this standard has not been voted upon.

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

A list of all parts of the IEC 61169 series, under the general title: *Radio-frequency connectors*, can be found on the IEC website.

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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning the design of these connectors given in Subclause 3.1.

IEC takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured the IEC that he/she is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with IEC. Information may be obtained from:

Mr. Qu jinliang
Address: Room 302, Gudai road 1266–48,Ghanghai 201102 China (021-54148062).

Shaanxi huada S&T CO., LTD
Address: No.3 Dianzixijie Electronic Indusrtrial Park, Xi'an P.R China

HUADA is the trade name of Shaanxi huada S&T CO., LTD. This information is given for the information of users of this standard and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance to this profile does not require use of the trade name HUADA. Use of the trade name HUADA requires permission from Shaanxi huada S&T CO., LTD

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. IEC shall not be held responsible for identifying any or all such patent rights.

ISO (www.iso.org/patents) and IEC (http://patents.iec.ch) maintain on-line data bases of patents relevant to their standards. Users are encouraged to consult the data bases for the most up to date information concerning patents.

RADIO-FREQUENCY CONNECTORS –

Part 42: Sectional specification for CQN series quick lock RF coaxial connectors

1 Scope

This part of IEC 61169, which is a sectional specification (SS), provides information and rules for the preparation of detail specifications (DS) for CQN series RF coaxial connectors, with characteristic impedance of 50 Ω, with threaded coupling and operating frequency limit up to 11 GHz, used in wireless, microwave, telecommunication, and other fields, connecting with RF cables or micro-strips.

It also prescribes mating face dimensions for general connectors-grade 2, dimensional details of standard test connectors-grade 0, gauging information and tests selected from IEC 61169-1, applicable to all detail specifications relating to CQN series connectors.

This specification indicates the recommended performance characteristics to be considered when writing a detail specification and it covers test schedules and inspection requirements for assessment levels M and H (see Tables 8 and 9).

2 Normative reference

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 61169-1:1992, *Radio-frequency connectors – Part 1: Generic specification – General requirements and measuring methods*[1]
Amendment 1:1996
Amendment 2:1997

3 Mating face and gauge information

3.1 Dimensions – General connectors – Grade 2

3.1.1 Connector with pin-centre contact

Metric dimension are original dimensions. All undimensioned pictorial configurations are for reference purpose only.

---

[1] There exists a consolidated edition 1.2 (1998) that comprises IEC 61169-1:1992, its Amendment 1:1996 and its Amendment 2:1997.

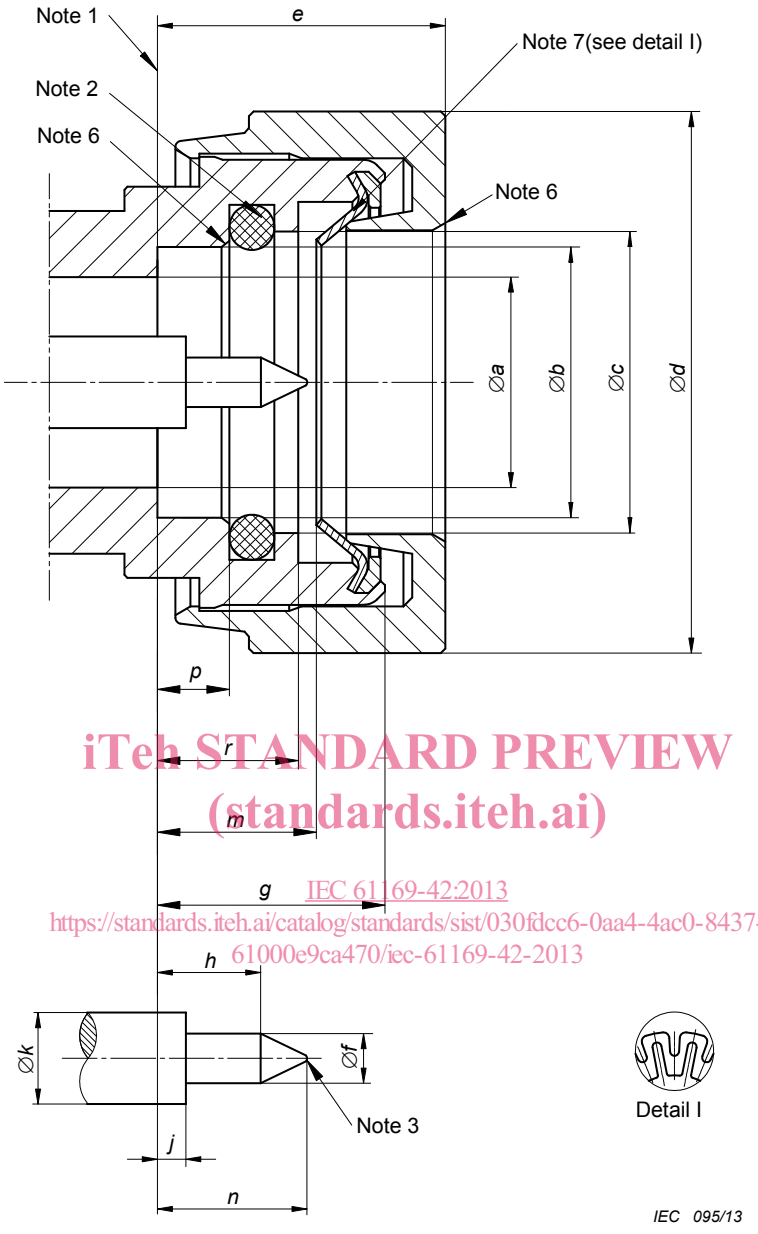

Figure 1 – Connector with pin-centre contact

(for dimensions and notes, see Table 1)

Table 1 – Dimensions of connector with pin-centre contact

Ref.	mm		Additional notes
	Min.	Max.	
a	7,00 nominal		(4)
b	9,05	—	
c	10,05	—	
d	—	19,00	
e	—	9,80	(5)
f	1,60	1,68	
g	—	7,60	
h	2,72	4,00	
j	0,80	1,00	
k	—	—	(4)
m	—	5,30	
n	5,00	6,28	
p	—	2,40	
r	—	4,70	

(1) Mechanical and electrical reference plane.

(2) Design and location of the seal ring is optional, providing it meets environmental requirement.

(3) Radius or angle, plane part is 0,25 mm max.

(4) Diameters are chosen to obtain a normal impedance of 50 Ω and meet electrical and mechanical requirements.

(5) Prefix locknut (maximal dimension).

(6) Chamfer.

(7) Design of spring is optional, providing it meets mechanical requirements performance.

3.1.2 Connector with socket-centre contact

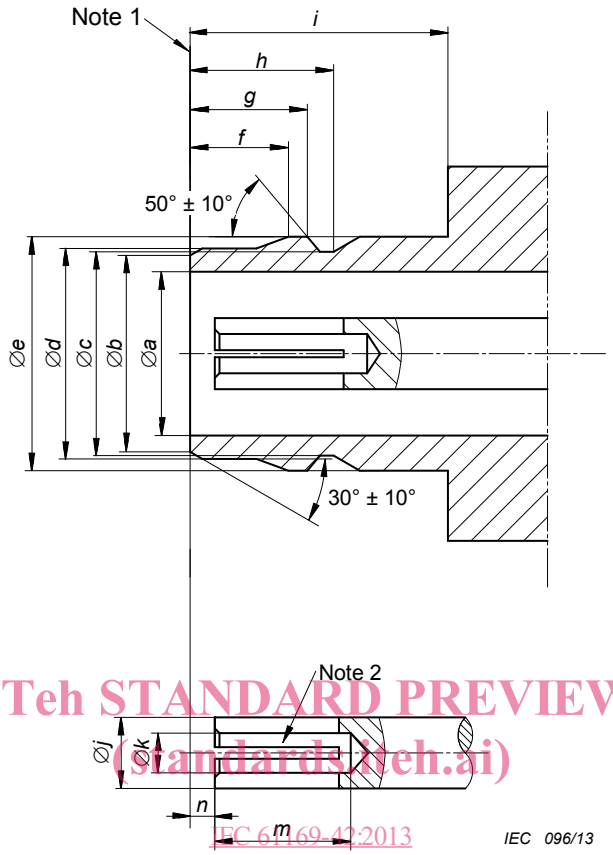

Figure 2 – Connector with socket-centre contact

(for dimensions and notes, see Table 2)

3.2 Gauges

3.2.1 Gauge pins for socket-centre contact

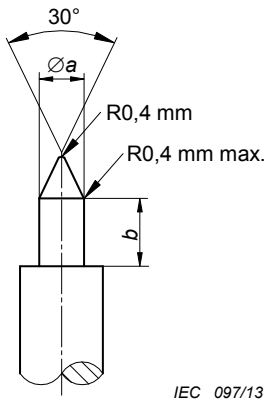

Figure 3 – Gauge pins for socket-centre contact

(for dimensions, see Table 3)

Table 2 – Dimensions of connector with socket-centre contact

Ref.	mm		Additional notes
	Min.	Max.	
a	7,00 nominal		(3)
b	8,30	8,50	
c	8,70	8,90	
d	8,90	9,00	
e	—	10	
f	4,20	4,25	
g	4,90	5,00	
h	6,15	6,25	
i	11,00	—	
j	—	—	(3)
k	—	—	(2)
m	5,33	—	
n	1,00	1,20	

(1) Mechanical and electrical reference plane.

(2) Design of centre contact is optional, providing it meets electrical and mechanical requirements.

(3) Diameters are chosen to obtain a normal impedance of 50 Ω and meet electrical and mechanical requirements performance.

Table 3 – Dimensions of gauge pins for socket-centre contact

Gauge A maximum material for sizing purposes			Gauge B minimum material for measurement of retention force mass of gauge: 56 g ± 2 g	
Ref.	mm		mm	
	Min.	Max.	Min.	Max.
a	1,680	1,685	1,595	1,600
b	1,72	2,92	1,72	2,92
Material: steel, polished, surface roughness: Ra=0,4 μm maximum.				

3.2.2 Test procedure

The gauge A shall be inserted into the socket-centre contact three times with a minimum depth of 1,72 mm. This is a sizing operation and should only be carried out when the socket-centre contact is removed from the connector.

After this, the gauge B shall be inserted into socket-centre contact. The contact shall retain the mass of the gauge in a vertical downward position. The test also shall be carried out on connector when the socket-centre contact is not removed.

Additional test:

At the conclusion of the tests and if prescribed in the DS, the force necessary to insert gauge A shall be measured. When this additional test is required, the force required shall not exceed 9,0 N.

3.3 Dimensions- standard test connectors – Grade 0

3.3.1 Connector with pin-centre contact

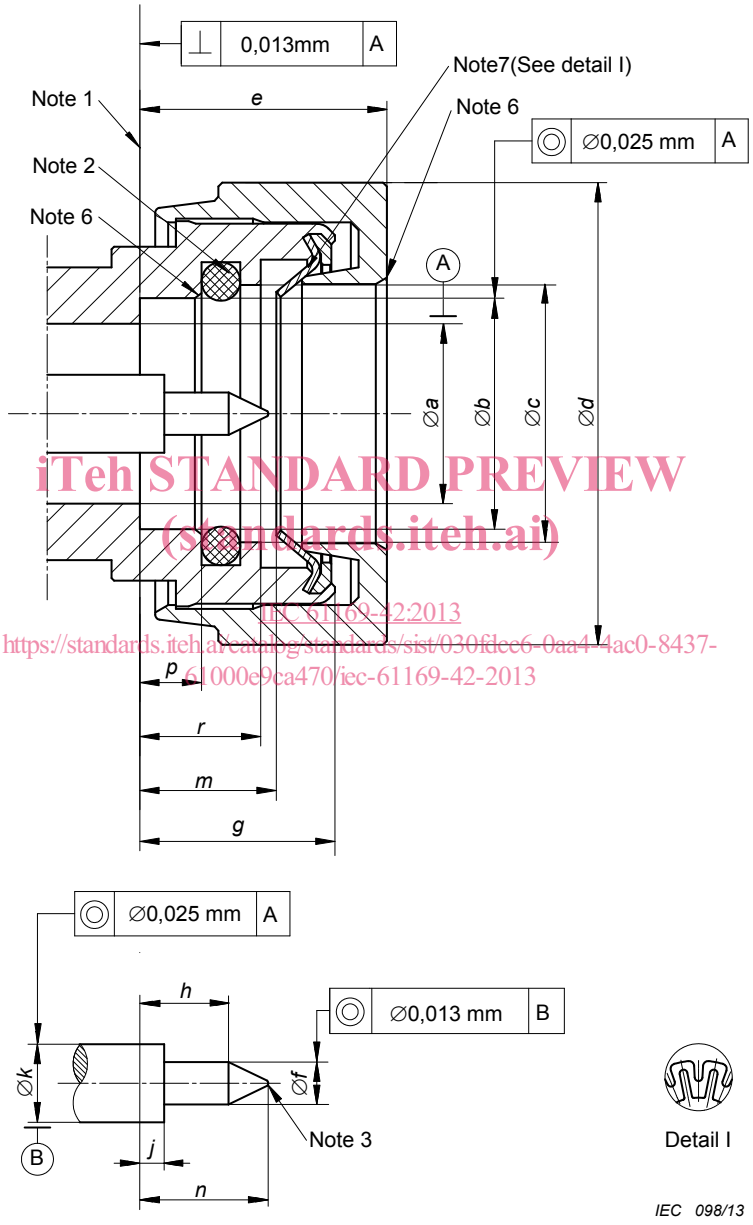

Figure 4 – Connector with pin-centre contact

(for dimensions and notes, see Table 4)

Table 4 – Dimensions of connector with pin-centre contact

Ref.	mm		Additional notes
	Min.	Max.	
a	7,00 nominal		(4)
b	9,05	—	
c	10,05	—	
d	—	19,00	
e	—	9,60	(5)
f	1,64	1,66	
g	—	7,50	
h	3,00	3,80	
j	0,90	1,00	
k	—	—	(4)
m	—	5,30	
n	5,30	6,00	
p	—	2,30	
r	—	4,60	

(1) Mechanical and electrical reference plane, surface roughness: *Ra* = 0,8 µm.

(2) Design and location of the seal ring is optional, but shall meet environmental requirement performance.

(3) Radius or angle, plane part is 0,25 mm max.

(4) Diameters are chosen to obtain a characteristic impedance of 50 Ω ± 0,5 Ω.

(5) Prefix locknut (maximal dimension).

(6) Chamfer.

(7) Design of spring is optional, providing it meets mechanical requirements performance.

3.3.2 Connector with socket-centre contact

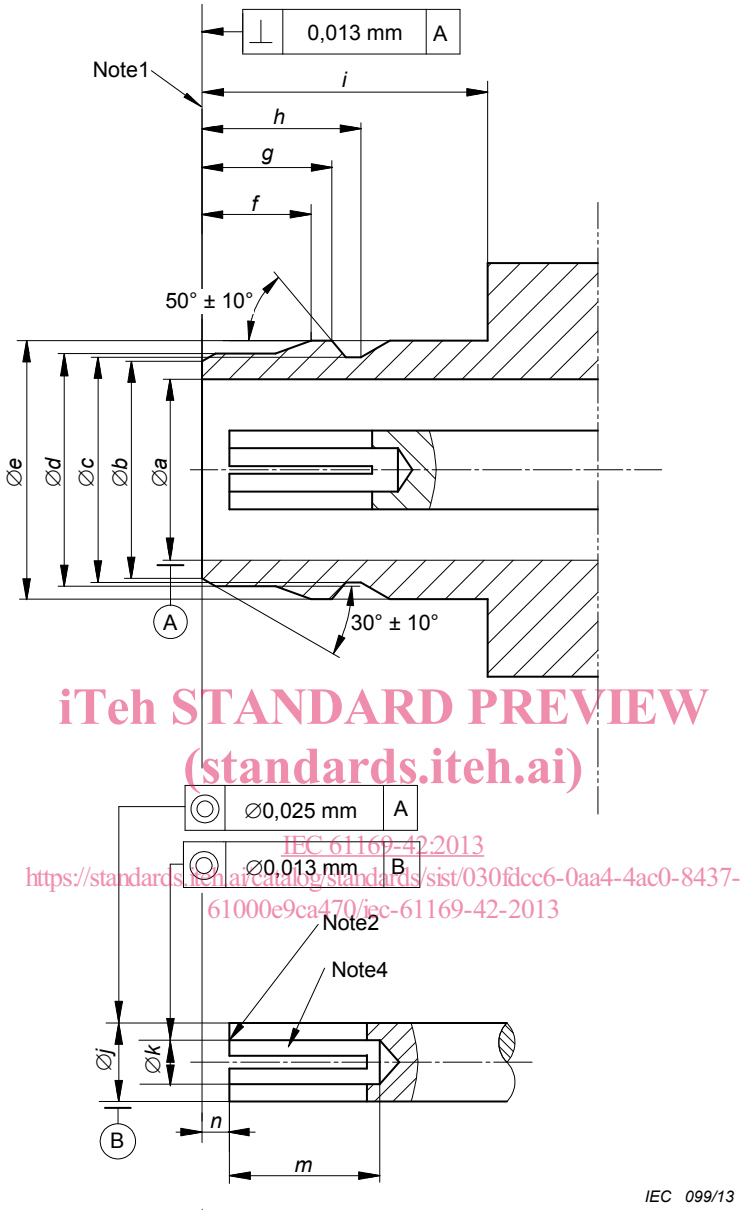

Figure 5 – Connector with socket-centre contact

(for dimensions and notes, see Table 5)