

PUBLICLY AVAILABLE SPECIFICATION

PRE-STANDARD



**Radio-frequency connectors –
Part 43: Sectional specification for RBMA series blind mating RF coaxial
connectors**

IEC PAS 61169-43:2010

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IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIO-FREQUENCY CONNECTORS –

Part 43: Sectional specification for RBMA series blind mating RF coaxial connectors

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IEC-PAS 61169-43 has been processed by subcommittee 46F: RF and microwave passive components, of IEC technical committee 46: Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document

Draft PAS	Report on voting
46F/151/PAS	46F/158/RVD

Following publication of this PAS, which is a pre-standard publication, the technical committee or subcommittee concerned may transform it into an International Standard.

This PAS shall remain valid for an initial maximum period of 3 years starting from the publication date. The validity may be extended for a single 3-year period, following which it shall be revised to become another type of normative document, or shall be withdrawn.

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.

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RADIO-FREQUENCY CONNECTORS –

Part 43: Sectional specification for RBMA series blind mating RF coaxial connectors

1 Scope

RBMA series connectors with characteristic impedance 50 Ω are normally used in microwave, telecommunication, wireless and other fields, connecting with RF cables or micro-strips. The operating frequency limit is up to 12,4 GHz.

This PAS provides information and rules for preparation of detail specification of RBMA series blind mating RF connectors together with the pro forma blank detail specification.

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 RBMA series blind mating RF connectors.

This PAS indicates 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.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 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

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.

3.1 Dimensions – General connectors – Grade 2

3.1.1 Connector with pin-centre contact

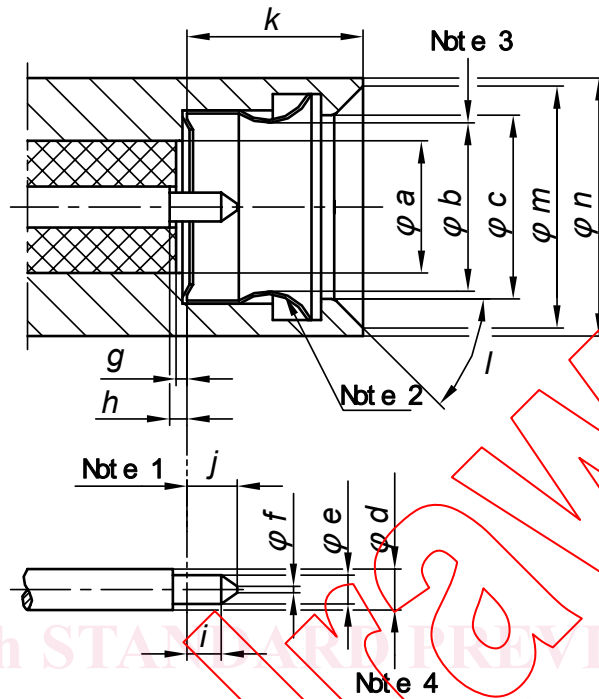


Figure 1 – Connector with pin- centre contact (G2)
(for dimensions and notes, see Table 1)

Table 1 – Dimensions of connector with pin-centre contact

Ref.	mm		Notes
	Min.	Max.	
a	--	4,18	
b	--	--	
c	5,55	5,60	
d	--	--	
e	0,90	0,94	
f	--	0,30	
g	0,00	0,25	
h	0,00	0,25	
i	1,27	--	
j	--	2,54	
k	5,45	5,55	
l	42°	48°	Angle
m	7,40	7,60	
n	8,00	--	

NOTE 1 Mechanical and electrical reference plane.
 NOTE 2 Spring fingers, the structure is optional.
 NOTE 3 Dimension must meet mechanical performance requirements.
 NOTE 4 The diameter is chosen upon the assumption that the PTFE dielectric has a dielectric constant of 2,02 to give an impedance of 50 Ω.

3.1.2 Connector with socket-centre contact

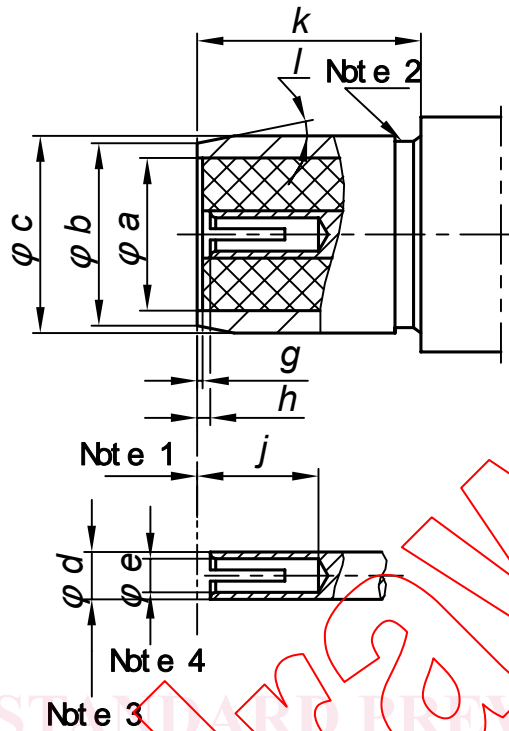


Figure 2 – Connector with socket-centre contact (for dimensions and notes, see Table 2)

Table 2 – Dimensions of connector with socket-centre contact

Ref.	mm		Notes
	Min.	Max.	
a	--	4,18	
b	4,85	4,95	
c	5,31	5,36	
d	--	--	
e	--	--	
g	0,00	0,25	
h	0,00	0,25	
j	2,00	--	
k	5,60	--	
l	8°	12°	Angle

NOTE 1 Mechanical and electrical reference plane, .

NOTE 2 Design and location of the seal feature is optional, but must meet environmental performance requirements when mating interface separation is not more than 0,38 mm.

NOTE 3 The diameter is chosen upon the assumption that the PTFE dielectric has a dielectric constant of 2,02 to give an impedance of 50 Ω.

NOTE 4 Design for slotting optional, and should meet electrical and mechanical requirements, when mating with $\phi 0,90 \sim \phi 0,94$ mm pin.

3.2 Gauges

3.2.1 Gauge pin for socket-centre contact

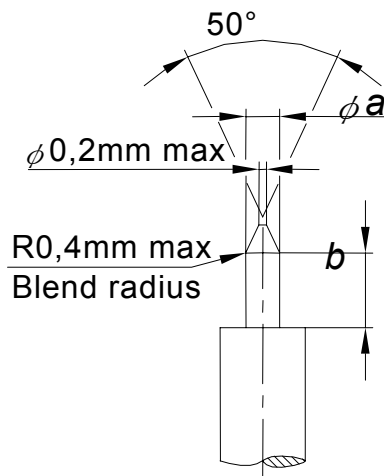


Figure 3 – Gauge pin for socket-centre contact
(for dimensions and notes, see Table 3)

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

Ref.	Gauge A		Gauge B	
	Maximum material for sizing purposes		Minimum material for measurement of retention force	
	mm		mm	
	Min.	Max.	Min.	Max.
a	0,940	0,945	0,899	0,902
b	0,76	1,14	1,27	1,90
Material: steel, polished.				
Surface roughness: Ra = 0,4 μm maximum on the cylindrical surface of length b.				

3.2.1.1 Test procedure

The gauge A shall be inserted into the socket-centre contact three times with a minimum depth of 0,76 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 have a withdrawal force of 0,28 N minimum after inserted into socket-centre contact. The contact shall retain the mass of the gauge in a vertical downward position. This test also shall be carried out on connector when the socket-centre contact is not removed.

3.2.2 Gauge for outer contact of connector with pin-centre contact

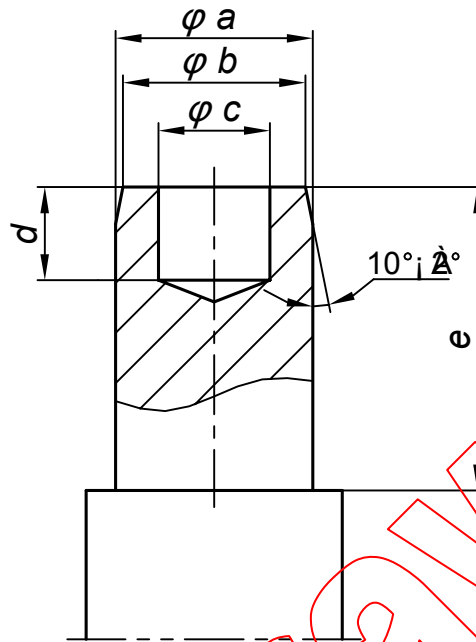


Figure 4 – Gauge for outer contact of connector with pin-centre contact (for dimensions and notes, see Table 4)

Table 4 – Gauge for outer contact of connector with pin-centre contact

Ref.	Gauge A		Gauge B	
	Maximum material for sizing purposes		Minimum material for measurement of retention force Mass of gauge: 56 g +2 g	
	mm		mm	
	Min.	Max.	Min.	Max.
a	5,360	5,365	5,305	5,310
b	4,85	4,95	4,85	4,95
c	2,50	--	2,50	--
d	4,00	--	4,00	--
e	5,60	--	5,60	--

Material: steel, polished.
Surface roughness: Ra ≤ 0,4 μm on the cylindrical surface of length e.