

01-april-1998

Radio-frequency connectors - Part 7: R.F. coaxial connectors with inner diameter of outer conductor 9,5 mm (0,374 in) with bayonet lock - Characteristic impedance 50 ohms (Type C) (IEC 60169-7:1975 + A1:1993)

Radio-frequency connectors -- Part 7: R.F. coaxial connectors with inner diameter of outer conductor 9,5 mm (0,374 in) with bayonet lock - Characteristic impedance 50 ohm (Type C)

Hochfrequenz-Steckverbinder -- Teil 7: HF Koaxialsteckverbinder mit einem Innendurchmesser des Außenleiters von 9,5 mm mit Bayonett-Verschluss - Wellenwiderstand 50 Ohm (Typ C)

Connecteurs pour fréquences radioélectriques -- Partie 7: Connecteurs coaxiaux pour fréquences radioélectriques avec diamètre intérieur du conducteur extérieur de 9,5 mm (0,374 in) à verrouillage à baïonnette - Impédance caractéristique 50 ohm (type C)

Ta slovenski standard je istoveten z: HD 134.7 S2:1995

ICS:

33.120.30 Radiofrekvenčni konektorji R.F. connectors
(RF)

SIST HD 134.7 S2:1998

en

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HARMONIZATION DOCUMENT
DOCUMENT D'HARMONISATION
HARMONISIERUNGSDOKUMENT

HD 134.7 S2

August 1995

ICS 33.120.30

Supersedes HD 134.7 S1:1977

Descriptors: RF coaxial connector, Type C, 50 ohm, 9,5 mm

English version

Radio-frequency connectors
Part 7: R.F. coaxial connectors with inner diameter of outer
conductor 9,5 mm (0,374 in) with bayonet lock
Characteristic impedance 50 ohms (Type C)
(IEC 169-7:1975 + A1:1993)

Connecteurs pour fréquences
radioélectriques
Partie 7: Connecteurs coaxiaux pour
fréquences radioélectriques avec
diamètre intérieur du conducteur
extérieur de 9,5 mm (0,374 in) à
verrouillage à baïonnette
Impédance caractéristique 50 ohms
(type C)
(CEI 169-7:1975 + A1:1993)

Hochfrequenz-Steckverbinder
Teil 7: HF Koaxialsteckverbinder mit
einem Innendurchmesser des
Außenleiters von 9,5 mm mit
Bayonett-Verschluß
Wellenwiderstand 50 Ohm (Typ C)
(IEC 169-7:1975 + A1:1993)

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This Harmonization Document was approved by CENELEC on 1995-07-04. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

Up-to-date lists and bibliographical references concerning such national implementation may be obtained on application to the Central Secretariat or to any CENELEC member.

This Harmonization Document exists in three official versions (English, French, German).

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of the International Standard IEC 169-7:1975 with its amendment 1:1993, prepared by SC 46D, RF connectors, of IEC TC 46, Cables, wires, waveguides, R.F. connectors, and accessories for communication and signalling, was submitted to the formal vote and was approved by CENELEC as HD 134.7 S2 on 1995-07-04 without any modification.

This Harmonization Document supersedes HD 134.7 S1:1977.

The following dates were fixed:

- latest date by which the existence of the HD has to be announced at national level (doa) 1996-01-01
- latest date by which the HD has to be implemented at national level by publication of a harmonized national standard or by endorsement (dop) 1996-07-01
- latest date by which the national standards conflicting with the HD have to be withdrawn (dow) 1996-07-01

Endorsement notice

The text of the International Standard IEC 169-7:1975 with its amendment 1:1993 was approved by CENELEC as a Harmonization Document without any modification.

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**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

60169-7

Première édition
First edition
1975-01

Connecteurs pour fréquences radioélectriques

Septième partie:

Connecteurs coaxiaux pour fréquences radioélectriques avec diamètre intérieur du conducteur extérieur de 9,5 mm (0,374 in) à verrouillage à baïonnette – Impédance caractéristique 50 ohms (type C)

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Radio-frequency connectors

Part 7:

R.F. coaxial connectors with inner diameter of outer conductor 9.5 mm (0.374 in) with bayonet lock – Characteristic impedance 50 ohms (Type C)

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Commission Electrotechnique Internationale
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Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIO-FREQUENCY CONNECTORS

**Part 7: R.F. coaxial connectors with inner diameter of outer conductor 9.5 mm (0.374 in)
with bayonet lock — Characteristic impedance 50 ohms (Type C)**

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.
- 4) The IEC has not laid down any procedure concerning marking as an indication of approval and has no responsibility when an item of equipment is declared to comply with one of its recommendations.

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PREFACE

This publication has been prepared by Sub-Committee 46D, Connectors for R.F. Cables, of IEC Technical Committee No. 46, Cables, Wires and Waveguides for Telecommunication Equipment. This publication is a revision of IEC Publication 159, Dimensions of the Mating Parts of Radio-frequency Connectors, concerning r.f. coaxial connectors which may preferably be used with r.f. cable 96 IEC 50-7.

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During the meeting of Sub-Committee 46A held in Tel Aviv in October 1966, it was agreed that IEC Publication 159 should be revised and a draft document circulated.

Subsequent comments were discussed during the meetings held in London in April and September 1968. During the latter meeting, a decision was made to submit a revised draft, document 46A(Central Office)68, to the National Committees for approval under the Six Months' Rule.

The revised draft called for extensive changes of IEC Publication 159; therefore at the meeting of Sub-Committee 46D held in Paris in November 1971, it was decided instead that document 46A(Central Office)68 should be redrafted as an entirely new document. This new draft, document 46D(Central Office)18, was submitted to the National Committees for approval under the Six Months' Rule in February 1973.

This publication forms Part 7 of IEC Publication 169, Radio-frequency Connectors.

It should therefore be used in conjunction with IEC Publication 169-1, Part 1: General Requirements and Measuring Methods.

The following countries voted explicitly in favour of publication of Part 7:

Austria	Italy
Belgium	Japan
Czechoslovakia	Sweden
Denmark	Switzerland
France	Turkey
Germany	United Kingdom
Israel	United States of America

RADIO-FREQUENCY CONNECTORS

Part 7: R.F. coaxial connectors with inner diameter of outer conductor 9.5 mm (0.374 in) with bayonet lock — Characteristic impedance 50 ohms (Type C)

1. Scope

This publication concerns patterns for r.f. coaxial connectors which may preferably be used with r.f. cables 96 IEC 50-7 of IEC Publication 96-2, Radio-frequency Cables, Part 2: Relevant Cable Specifications.

These connector patterns are for medium power, quick disconnect applications using a bayonet type coupling mechanism and are commonly known as Type C.

2. IEC type designation

Connectors conforming to this publication shall be designated by:

- a) the reference to this publication: 169-7 IEC;
- b) a serial number (see Clause 7);
- c) a letter corresponding to the climatic category (see Clause 4).

Example

169-7 IEC-1 A denotes a free pin connector belonging to climatic category 40/85/21 to be used with a r.f. coaxial cable 96 IEC 50-7-1/2/4.

Note. — The type designation used in this publication is provisional. A final type designation is under consideration.

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3. Ratings

This publication specifies pin and socket connectors with bayonet lock with an inner diameter of the outer conductor of 9.5 mm (0.374 in). Cable mounting connectors shall function properly with 7-mm cables to a frequency range of at least 3 GHz, and may be used at higher frequencies if a reflection coefficient greater than 0.1 can be tolerated.

The connectors have a maximum working voltage of 1 kV at sea level (350 V peak at 20 000 m altitude). Connection to the cable may be made either by crimping or soldering, depending upon design.

Note. — Patterns for crimping are under consideration.

Certain connectors have both barrier and panel seals and all connectors may be used over a temperature range of $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$. Special designs may be used over a wider temperature range of $-55\text{ }^{\circ}\text{C}$ to $+155\text{ }^{\circ}\text{C}$.

4. Climatic categories (see IEC Publication 68, Basic Environmental Testing Procedures)

Category	Designation letter (see note)	Temperature range	Damp heat, steady state
40/ 85/21	A	$-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$	21 days
40/155/21	B	$-40\text{ }^{\circ}\text{C}$ to $+155\text{ }^{\circ}\text{C}$	21 days
55/155/56	C	$-55\text{ }^{\circ}\text{C}$ to $+155\text{ }^{\circ}\text{C}$	56 days

Note. — To be included in the IEC type designation (see Clause 2).

5. Dimensions — Connecteurs d'usage général

Les dimensions en inches sont les dimensions originales. Toutes les configurations non cotées sont données uniquement à titre de référence.

5.1 Connecteur mâle

5. Dimensions — General purpose connectors

Inch dimensions are original dimensions. All undimensioned pictorial configurations are for reference purposes only.

5.1 Pin connector

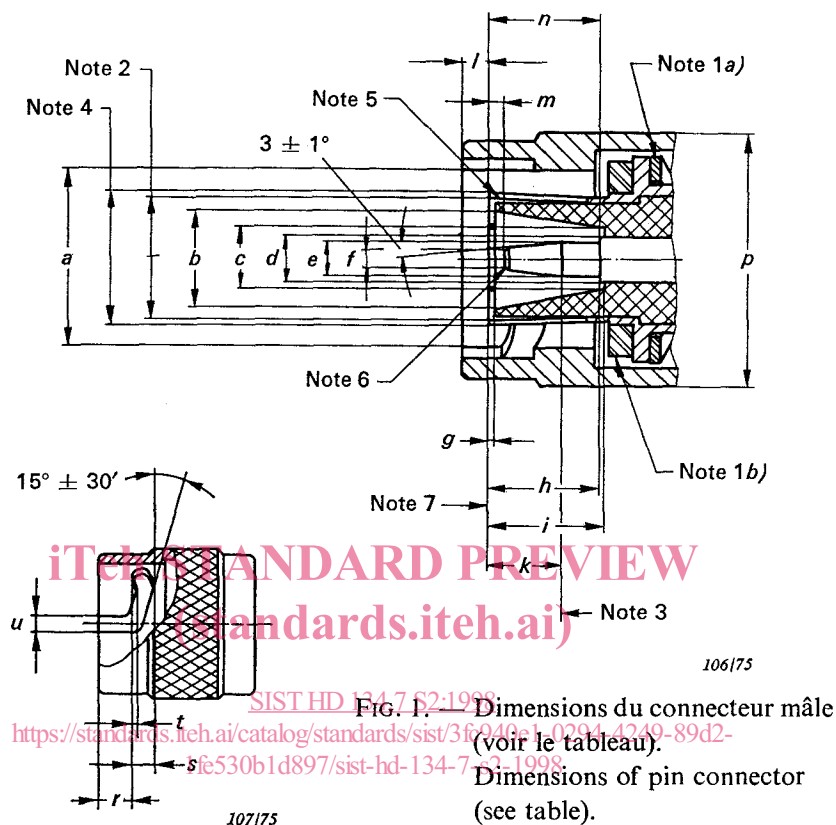


FIG. 2. — Dimensions du verrouillage à baïonnette (voir le tableau).
Dimensions of bayonet lock (see table).

Réf. Ref.	mm		in		Fig.	Réf. Ref.	mm		in		Fig.
	Min.	Max.	Min.	Max.			Min.	Max.	Min.	Max.	
a	13,79	13,94	0,543	0,549	1	k	4,85	6,38	0,191	0,251	1
b	7,01	—	0,276	—	1	l	—	2,16	—	0,085	1
c	4,92	—	0,194	—	1	m	0,09	1,02	0,003	0,040	1
d	3,02	3,15	0,119	0,124	1	n	7,54	7,72	0,297	0,304	1
e	2,29	2,34	0,090	0,092	1	p	—	19,84	—	0,781	1
f	—	1,27	—	0,050	1	r	2,62	2,87	0,103	0,113	2
g	0,18	—	0,007	—	1	s	3,32	3,58	0,131	0,141	2
h	7,80	8,56	0,307	0,337	1	t	0,25	0,41	0,010	0,016	2
i	7,85	—	0,309	—	1	u	2,64	2,90	0,104	0,114	2

Notes 1a). — Dans les conditions d'accouplement, la face longitudinale du ressort du mécanisme d'accouplement doit dépasser la pression exercée par le joint d'étanchéité de manière à assurer la butée des contacts extérieurs à la surface de référence.

1b). — Joint d'étanchéité pour satisfaire aux conditions d'environnement demandées.

2. — Voir le paragraphe 6.1.1.2.

3. — Le cône de la broche de contact commence ici.

4. — Pour les exigences de calibrage, voir le paragraphe 6.1.1.1. Les contacts fendus doivent être évasés pour satisfaire aux exigences.

5. — Dessin de fente à choisir. Le contact extérieur doit satisfaire aux conditions des caractéristiques d'accouplement.

6. — Forme de l'arrondi à choisir.

7. — Plan de référence mécanique et électrique.

Notes 1a). — In the mated condition, the longitudinal force of the spring of the coupling mechanism shall exceed the pressure exerted by the sealing gasket by an amount necessary to ensure butting of the outer contacts at the reference plane.

1b). — Sealing gasket to give required environmental performance.

2. — See Sub-clause 6.1.1.2.

3. — Taper of pin contact starts here.

4. — For gauging requirements, see Sub-clause 6.1.1.1. Slotted contacts to be flared to meet the requirements.

5. — Slot design optional. The outer contact shall meet the mating characteristics requirement.

6. — Shape of tip optional.

7. — Mechanical and electrical reference plane.

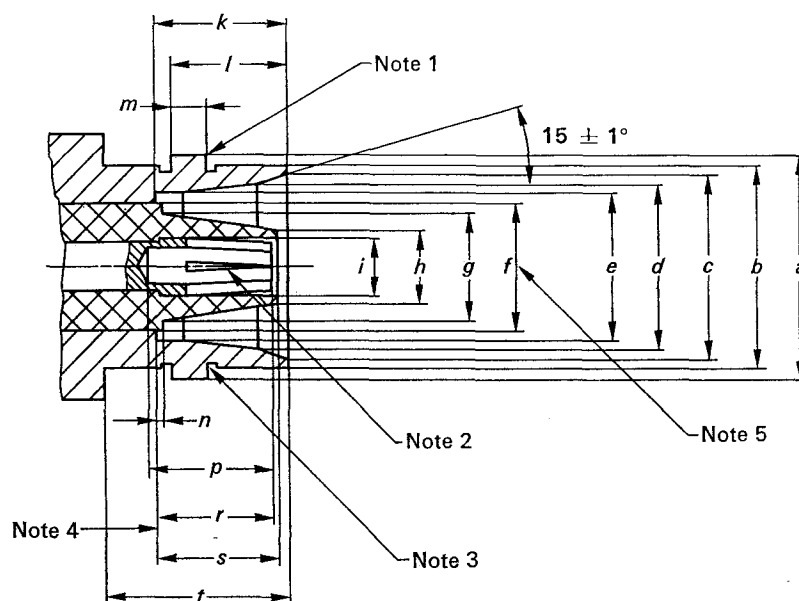
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5.2 Connecteur femelle

5.2 Socket connector



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FIG. 3. — Dimensions du connecteur femelle (voir le tableau).
Dimensions of socket connector (see table).

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Réf. Ref.	mm		in		Réf. Ref.	mm		in	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
a	14,99	15,24	0,590	0,600	k	8,43	8,59	0,332	0,338
b	13,46	13,72	0,530	0,540	l	7,80	7,95	0,307	0,313
c	12,32	12,57	0,485	0,495	m	2,24	2,49	0,088	0,098
d	11,18	11,43	0,440	0,450	n	—	0,18	—	0,007
e	10,44	10,54	0,411	0,415	p	7,62	—	0,300	—
f	—	9,50	—	0,374	r	6,93	7,70	0,273	0,303
g	—	6,91	—	0,272	s	—	7,85	—	0,309
h	—	4,83	—	0,190	t	12,57	—	0,495	—
i	3,02	3,15	0,119	0,124					

Notes 1. — Deux ergots, $180^\circ \pm 30'$.

2. — Dessin de la fente à choisir. Contact à resserrer pour satisfaire aux conditions d'utilisation.
3. — Un creux entre ergots est admissible.
4. — Plan de référence mécanique et électrique.
5. — Extension de l'isolant au-delà du plan de référence.

Notes 1. — Two studs, $180^\circ \pm 30'$.

2. — Slot design optional. Contact to be closed to meet performance requirements.
3. — A concave depression between studs is permissible.
4. — Mechanical and electrical reference plane.
5. — Applies to dielectric extending beyond reference plane.

6. Calibres et connecteurs de référence

6.1 Calibres mécaniques

6.1.1 Connecteurs mâles

Contact extérieur

6.1.1.1 Diamètre extérieur

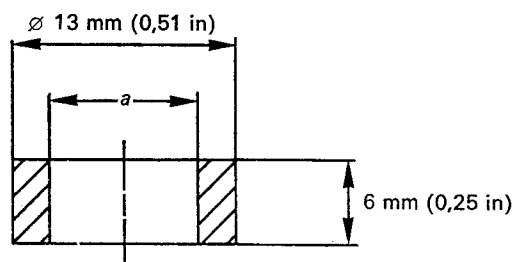
6. Gauges and reference connectors

6.1 Mechanical gauges

6.1.1 Pin connectors

Outer contact

6.1.1.1 Outer diameter



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FIG. 4. — Calibre (anneau) pour contact extérieur du connecteur mâle.
Gauge ring for outer contact of pin connector.

a) Pour des contacts extérieurs non fendus, un anneau d'essai en acier (figure 4 ci-dessus) avec un diamètre intérieur a de 10,44 mm (0,411 in) avec rugosité de $0,4 \mu\text{m}$ ($16 \mu\text{in}$) doit être glissé sur le contact extérieur électrique du connecteur. La force nécessaire pour glisser l'anneau d'essai autour du connecteur à une distance minimale de 3,18 mm (0,125 in) ne doit pas dépasser 30 N.

b) Pour des contacts extérieurs fendus, un anneau d'essai en acier (figure 4) avec un diamètre intérieur a de 10,63 mm (0,419 in) min. doit être placé autour du contact extérieur électrique du connecteur. L'anneau d'essai doit épouser uniformément le contact électrique extérieur lorsqu'il est glissé autour du contact extérieur sur une longueur ne dépassant pas 0,79 mm (0,031 in).

6.1.1.2 Diamètre intérieur

Le diamètre intérieur du contact extérieur doit être égal à 9,69 mm (0,3815 in) min. Dans le cas d'un contact fendu, cette condition s'applique quand le contact est introduit dans un calibre (anneau) de diamètre 10,44 mm (0,411 in) min. à une profondeur de 0,79 mm (0,031 in).

a) For non-slotted outer contacts, a steel test ring (Figure 4 above) with inner diameter a 10.44 mm (0.411 in) with a $0.4 \mu\text{m}$ ($16 \mu\text{in}$) finish shall be pushed over the outer electrical contact of the connector. The force required to push this test ring onto the connector a minimum distance of 3.18 mm (0.125 in) shall not exceed 30 N.

b) For slotted outer contacts, a steel test ring (Figure 4) with an inner diameter a of 10.63 mm (0.419 in) min. shall be placed over the outer electrical contact of the connector. The test ring shall uniformly meet the outer electrical contact when pushed no more than 0.79 mm (0.031 in) over this contact.

6.1.1.2 Inner diameter

The inner diameter of outer contact shall be 9.69 mm (0.3815 in) min. In the case of a slotted contact, this requirement applies when the contact is inserted into a ring gauge of diameter 10.44 mm (0.411 in) min. to a depth of 0.79 mm (0.031 in).