

Connectors for frequencies below 3 MHz for use with printed boards

Part 7. Detail specification for connectors, 8-way, including fixed and free connectors with common mating features

The European Standard EN 60603-7 : 1993 has the status of a
British Standard

Connecteurs pour fréquences inférieures à
3 MHz pour utilisation avec cartes imprimées
Partie 7. Spécification particulière pour
connecteurs à 8 voies, comprenant des
embases et des fiches ayant des
caractéristiques d'accouplement communes

Stechverbinder für Frequenzen unter 3 MHz
für gedruckte Schaltungen
Teil 7. Bauartspezifikation für Steckverbinder,
8-polig, einschließlich fester und freier
Steckverbinder mit gemeinsamen
Steckmerkmalen

UDC 621.316.541.049.75

Cooperating organizations

The European Committee for Electrotechnical Standardization (CENELEC), under whose supervision this European Standard was prepared, comprises the national committees of the following countries:

Austria	Italy
Belgium	Luxembourg
Denmark	Netherlands
Finland	Norway
France	Portugal
Germany	Spain
Greece	Sweden
Iceland	Switzerland
Ireland	United Kingdom

This British Standard, having been prepared under the direction of the Electronic Components Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 November 1993

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National foreword

This British Standard has been prepared under the direction of the Electronic Components Standards Policy Committee and is the English language version of EN 60607-3 : 1993, *Connectors for frequencies below 3 MHz for use with printed boards. Part 7: Detail specification for connectors, 8-way, including fixed and free connectors with common mating features*, published by the European Committee for Electrotechnical Standardization (CENELEC). It is identical with IEC 603-7 : 1990 published by the International Electrotechnical Commission (IEC).

Compliance with a British Standard does not of itself confer immunity from legal obligations.

English version

Connectors for frequencies below 3 MHz for use with
printed boards
Part 7: Detail specification for connectors, 8-way,
including fixed and free connectors with common mating
features

(IEC 603-7 : 1990)

Connecteurs pour fréquences inférieures à
3 MHz pour utilisation avec cartes imprimées
Septième partie: Spécification particulière
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Steckmerkmalen
(IEC 603-7 : 1990)

This European Standard was approved by CENELEC on 1993-07-06. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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

At the request of the CENELEC Technical Committee TC 48B, Requirements for a telecommunication connector for the connection of IT equipment amongst each other and to broadband networks, CENELEC 68 Technical Board decided to submit the International Standard IEC 603-7 : 1990 to the CENELEC Unique Acceptance Procedure (UAP) for acceptance as a European Standard. The procedure started in September 1992.

The text of the International Standard was approved by CENELEC as EN 60607-3 on 6 July 1993.

This European Standard replaces ENV 41001 : 1987.

This European Standard specifies in detail the dimensional aspects of the ISDN connector. It is to be read in conjunction with CEN EN 28877 : 1990 (*Information processing systems — Interface connector and contact assignments for ISDN basic access interface and reference points S and T* (ISO 8877 : 1987)) which specifies the pin allocation for functional signals.

The following dates were fixed:

- latest date of publication
of an identical national
standard (dop) 1994-06-01
- latest date of withdrawal
of conflicting national
standards (dow) 1994-06-01

For products which have been complied with the relevant national standard before 1994-06-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1999-06-01.

Annexes designated 'normative' are part of the body of the standard. In this standard, annex ZA is normative.

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GENERAL INFORMATION ON LICENSING

The interface specified by this standard includes patented matter which pertains to connectors, 8-way, for interconnect systems as defined in Clauses 3 and 4.

The International Electrotechnical Commission calls attention to the fact that it is claimed that connectors, 8-way, for interconnect systems may be the subject of United States patents and corresponding patents of foreign countries owned by American Telephone and Telegraph (AT&T). Although these patents appear to cover the subject matter of Clauses 3 and 4 in this standard, the IEC takes no position with respect to patent validity. AT&T has assured the IEC that it is willing to grant a license under these patents on reasonable and non-discriminatory terms and conditions to anyone wishing to obtain such a license.

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CONNECTORS FOR FREQUENCIES BELOW 3 MHz FOR USE WITH PRINTED BOARDS

Part 7: Detail specification for connectors, 8-way, including fixed and free connectors with common mating features

1. Scope

This standard covers an 8-way connector system of 4, 6 or 8 contacts consisting of a range of free and fixed connectors. The connectors cover a variety of different mounting configurations and termination types with a common mating configuration.

Fixed connectors are provided with terminations suitable for solder, insulation displacement, screw terminal, crimp, insulation piercing termination, printed-board mounting and flying leads.

Free connectors are provided for crimp, insulation piercing and insulation displacement terminations to cable assemblies with tinsel, stranded or solid wire conductors. At the present time free connectors may only be available with a limited range of terminations and variants.

This standard shall be used in conjunction with the following IEC publications:

Publications Nos. 50 (581) (1978): International Electrotechnical Vocabulary (IEV), Chapter 581: Electromechanical components for electronic equipment.

97 (1970): Grid system for printed circuits.

194 (1975): Terms and definitions for printed circuits.

326: Printed boards.

512-2 (1985): Electromechanical components for electronic equipment; basic testing procedures and measuring methods, Part 2: General examination, electrical continuity and contact resistance tests, insulation tests and voltage stress tests.

512-3 (1976): Part 3: Current-carrying capacity tests.

512-5 (1977): Part 5: Impact tests (free components), static loads tests (fixed components), endurance tests and overload tests.

512-6 (1984): Part 6: Climatic tests and soldering tests.

512-7 (1988): Part 7: Mechanical operating tests and sealing tests.

512-8 (1984): Part 8: Connector tests (mechanical) and mechanical tests on contacts and terminations.

603-1 (1981): Connectors for frequencies below 3 MHz for use with printed boards, Part 1: General rules and guide for the preparation of detail specifications.

603-1A (1982): First supplement: Appendix B: Example of detail specification. Group of related two-part connectors for printed boards for basic grid 2,54 mm (0,1 in) with common mounting features.

664 (1980): Insulation co-ordination within low-voltage systems, including clearances and creepage distances for equipment.

664A (1981): First supplement.

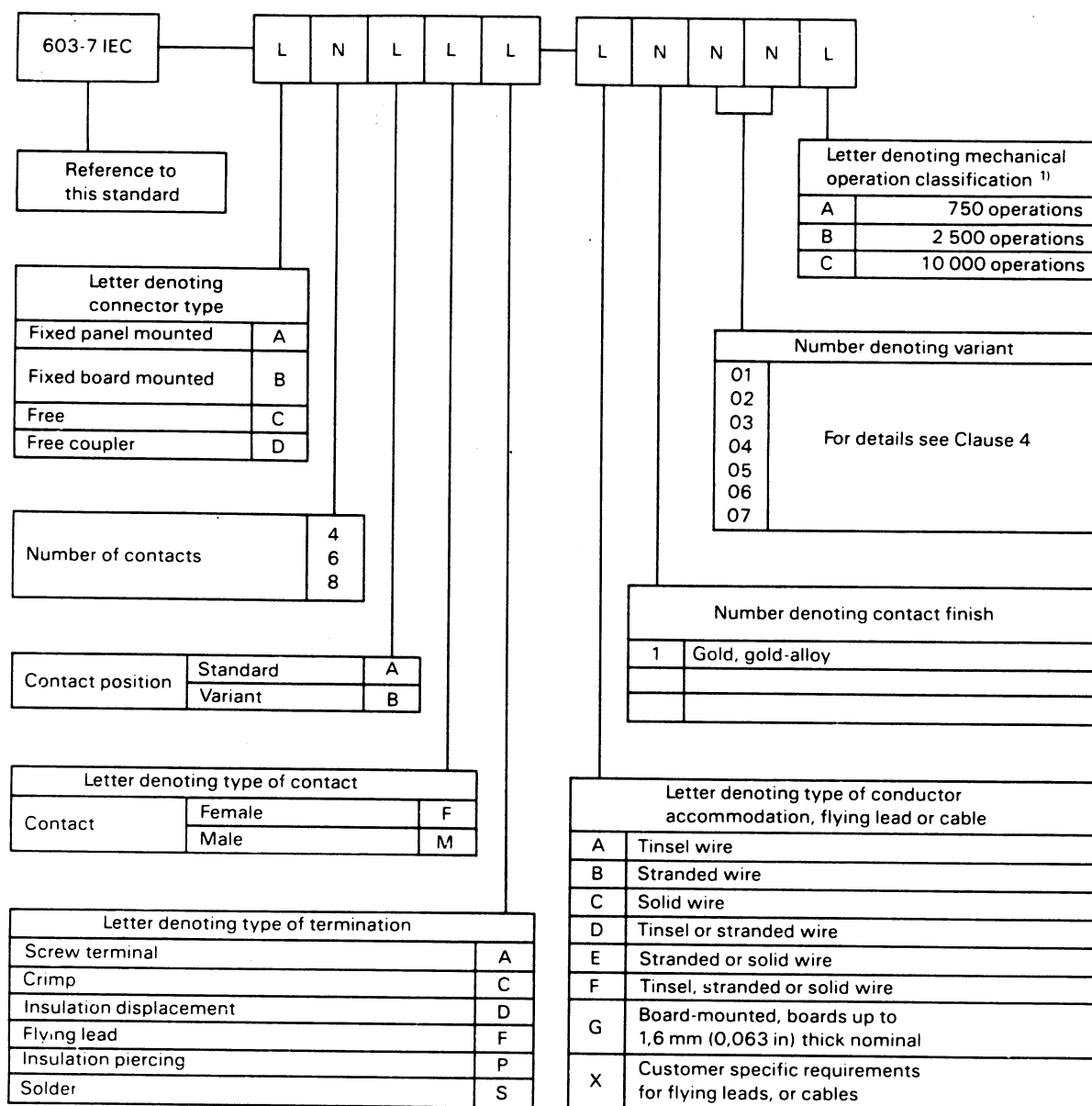
807-1 (1985): Rectangular connectors for frequencies below 3 MHz, Part 1: General requirements and guide for the preparation of detail specifications.

Other publication quoted:

ISO Standard 468 (1982): Surface roughness — Parameters, their values and general rules for specifying requirements.

2. IEC type designation

Connectors, connector bodies and connectors with preinserted contacts according to this standard shall be designated by the following system:



¹⁾ At a minimum this letter designation must be marked on component.

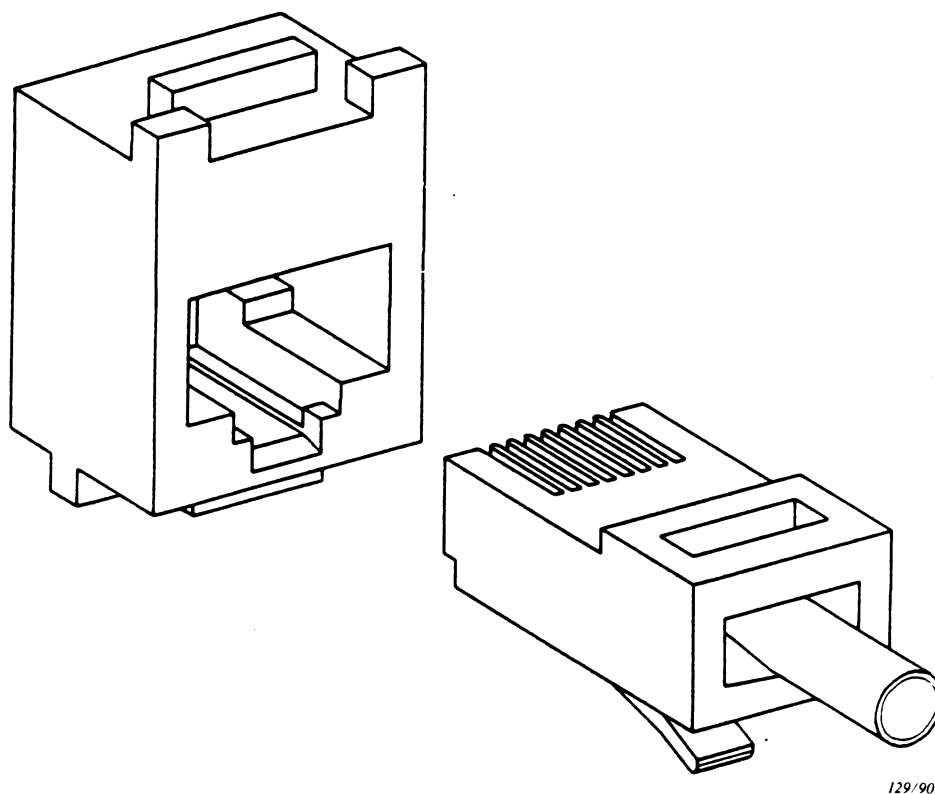
Note. — "L" stands for letter.
"N" stands for number.

Example. — Connector type B, having 8 female contacts with solder terminations, 750 mechanical operations. Complete board-mounted connector, variant 01: 603-7 IEC-B8AFS-G101A.

3. Caractéristiques communes et vue isométrique 3. Common features and isometric view

3.1 Vue isométrique

3.1 Isometric view



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Figure 1

3.2 Informations concernant la face d'accouplement 3.2 Mating information

Pour les besoins de cette spécification, les informations concernant les dimensions sont détaillées en plus de celles qui sont spécifiées dans la CEI 603-1 (et dans la CEI 807-1). Il est donc nécessaire de lire ensemble les paragraphes 3.2.1 à 3.2.3 inclus.

3.2 Mating information

For the purpose of this specification, dimensional information in excess of that specified in IEC 603-1 (and IEC 807-1) is detailed. It is, therefore, necessary to read Sub-clauses 3.2.1 to 3.2.3 inclusive in conjunction with each other.

3.2.1 *Contacts*

3.2.1 *Contacts*

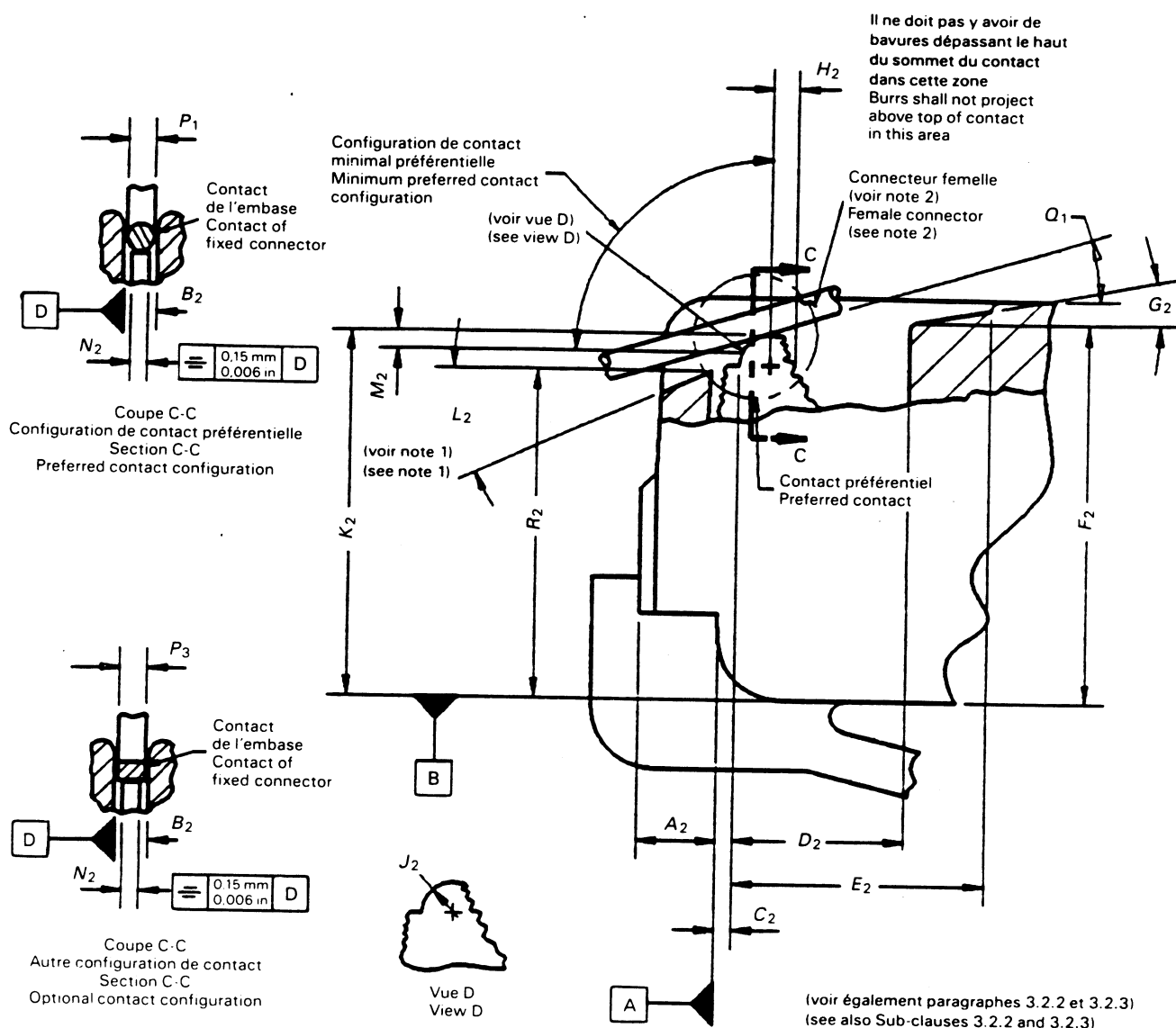


Figure 2

- Notes 1.** — La dimension L_2 concerne seulement les connecteurs dont la dimension R_2 est supérieure à 4,83 mm (0,190 in).
- 2.** — Les informations montrées concernant la face d'accouplement ne peuvent être respectées qu'avec une fiche équipée de câble.

- Notes 1.** — Dimension L_2 applies only to connectors where dimension R_2 is greater than 4,83 mm (0,190 in).
- 2.** — The mating information shown can only be achieved with a free connector with cable attached.

TABLEAU I

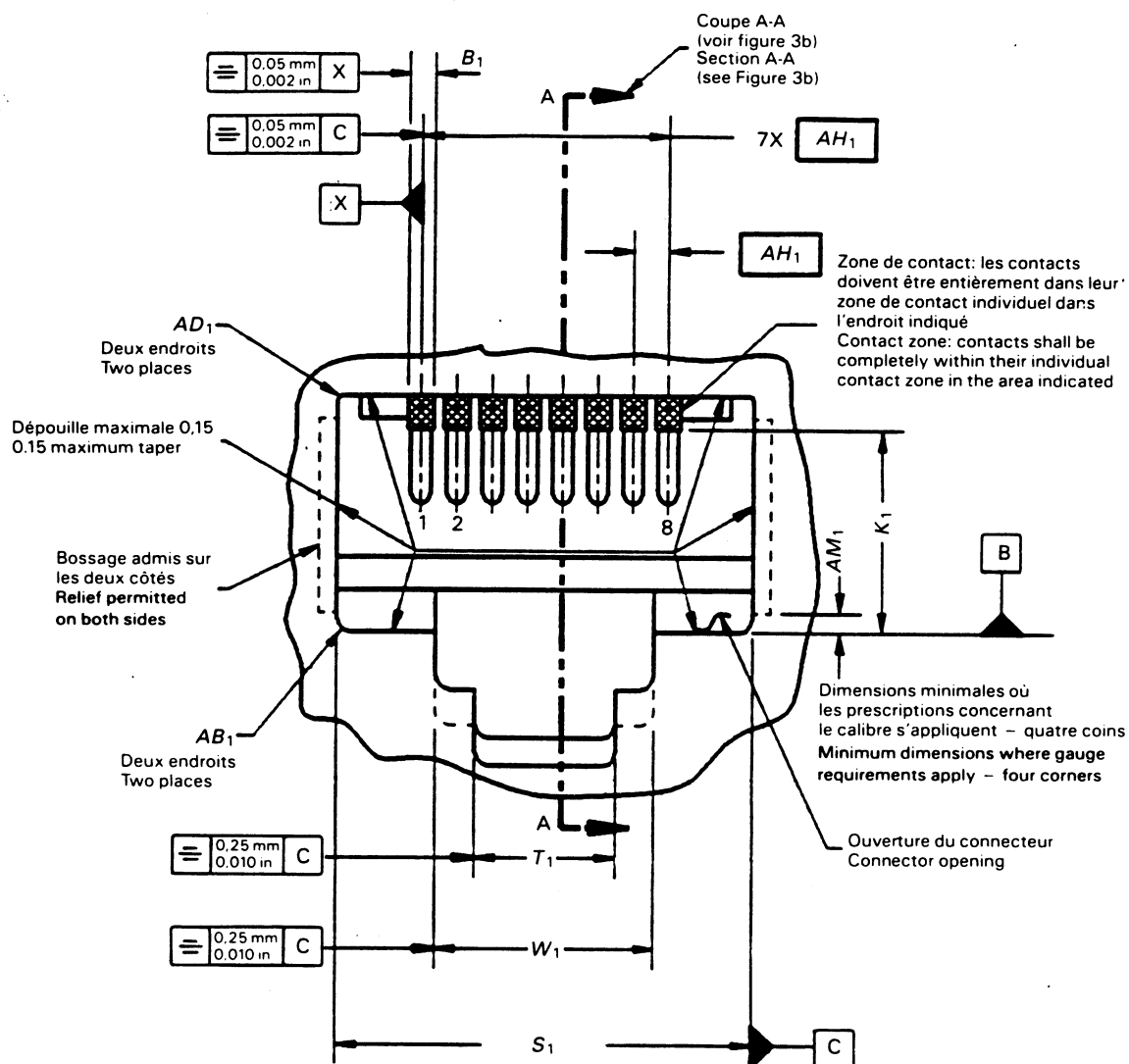
TABLE I

Lettre Letter	Maximum		Minimum	
	mm	in	mm	in
A_2	1,45	0,057	0,89	0,035
B_2	0,61	0,024	0,51	0,020
C_2	0,46	0,018	0,03	0,001
D_2			2,79	0,110
E_2			4,11	0,162
F_2	6,22	0,245		
H_2			0,38	0,015
J_2	0,64	0,025	0,38	0,015
K_2	6,15	0,242	5,89	0,232
M_2			0,30	0,012
N_2			0,28	0,011
P_1	0,50	0,0195	0,45	0,0177
P_3	0,50	0,0195	0,36	0,014
R_2	5,36	0,211		

Lettre Letter	Maximum	Minimum
G_2	10°	
L_2		24°
Q_1	24°	13°

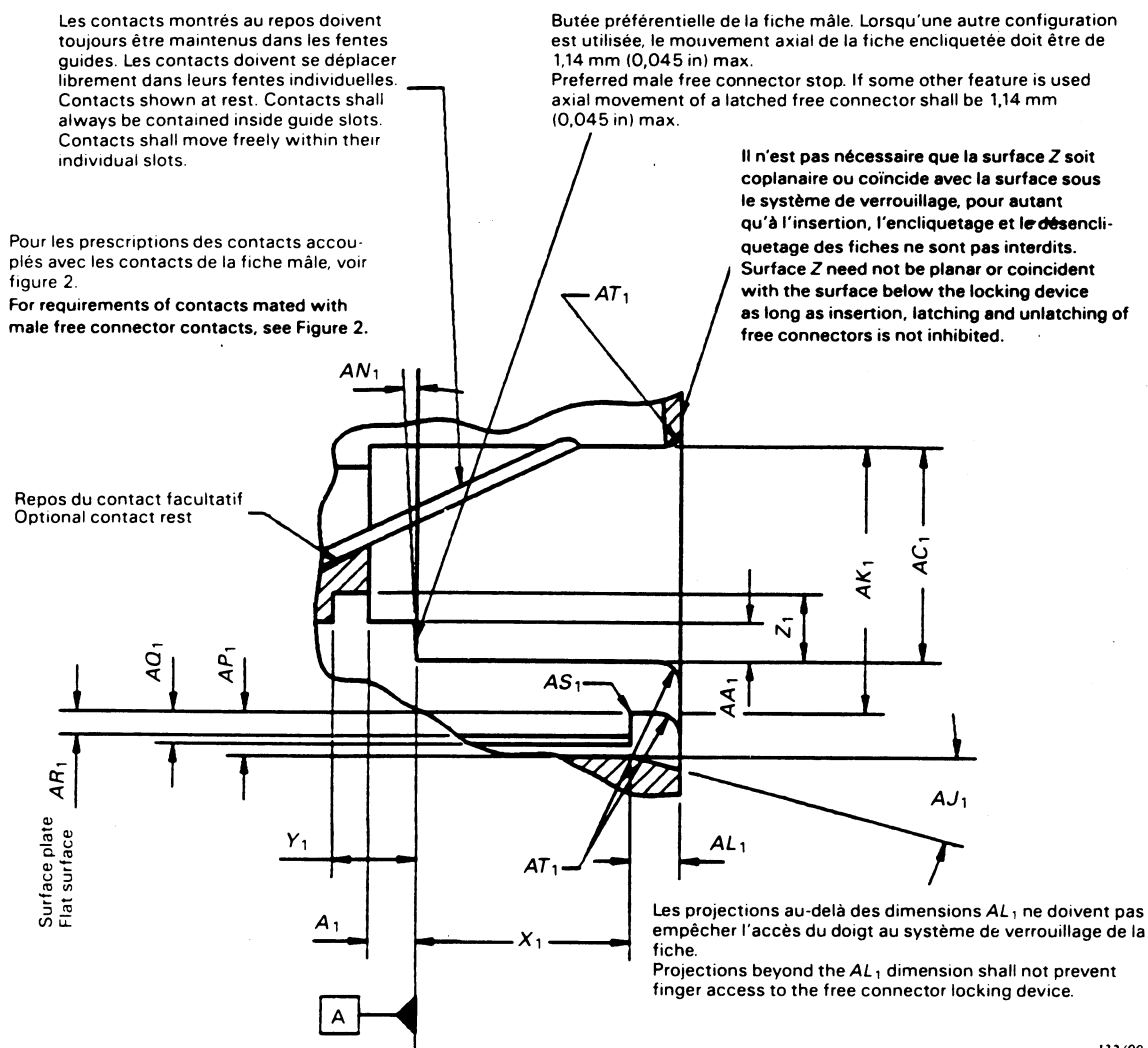
3.2.2 Embase

3.2.2 Fixed connector



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Figure 3a. — Vue de la zone de contact.
View of contact zone.



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Figure 3b — Coupe A—A. Tous les coins internes dans la cavité du connecteur doivent avoir un rayon maximal de 0,38 mm (0,015 in) sauf prescription contraire.
Section A—A. All internal corners in the connector cavity shall be 0,38 mm (0,015 in) radius maximum unless otherwise specified.

TABLEAU II

TABLE II

Lettre Letter	Maximum		Minimum		Nominal (ref)	
	mm	in	mm	in	mm	in
<i>A</i> ₁			1,47	0,058		
<i>B</i> ₁	0,71	0,028				
<i>K</i> ₁	5,84	0,230				
<i>S</i> ₁	12,04	0,474	11,79	0,464	11,91	0,469
<i>T</i> ₁	4,19	0,165	3,94	0,155		
<i>W</i> ₁	6,38	0,251	6,22	0,245		
<i>X</i> ₁	6,86	0,270	6,68	0,263		
<i>Y</i> ₁			2,34	0,092		
<i>Z</i> ₁			2,08	0,082		
<i>AA</i> ₁	1,24	0,049				
<i>AB</i> ₁	0,38	0,015				
<i>AC</i> ₁	6,96	0,274	6,71	0,264	6,83	0,269
<i>AD</i> ₁	0,13	0,005				
<i>AH</i> ₁					1,02 *PV **TP	0,040 *PV **TP
<i>AK</i> ₁	8,66	0,341	8,38	0,330		
<i>AL</i> ₁			1,40	0,055		
<i>AM</i> ₁			1,52	0,060		
<i>AP</i> ₁			1,27	0,050		
<i>AQ</i> ₁			0,97	0,038		
<i>AR</i> ₁			0,71	0,028		
<i>AS</i> ₁	0,08	0,003				
<i>AT</i> ₁					0,76	0,030

* PV indique la position vraie.
** TP indicates true position.

Lettre Letter	Maximum	Nominal ref.
<i>AJ</i> ₁		15°
<i>AN</i> ₁	3°30'	

3.2.3 Fiche (équipée de câble)

3.2.3 Free connector (with cable attached)

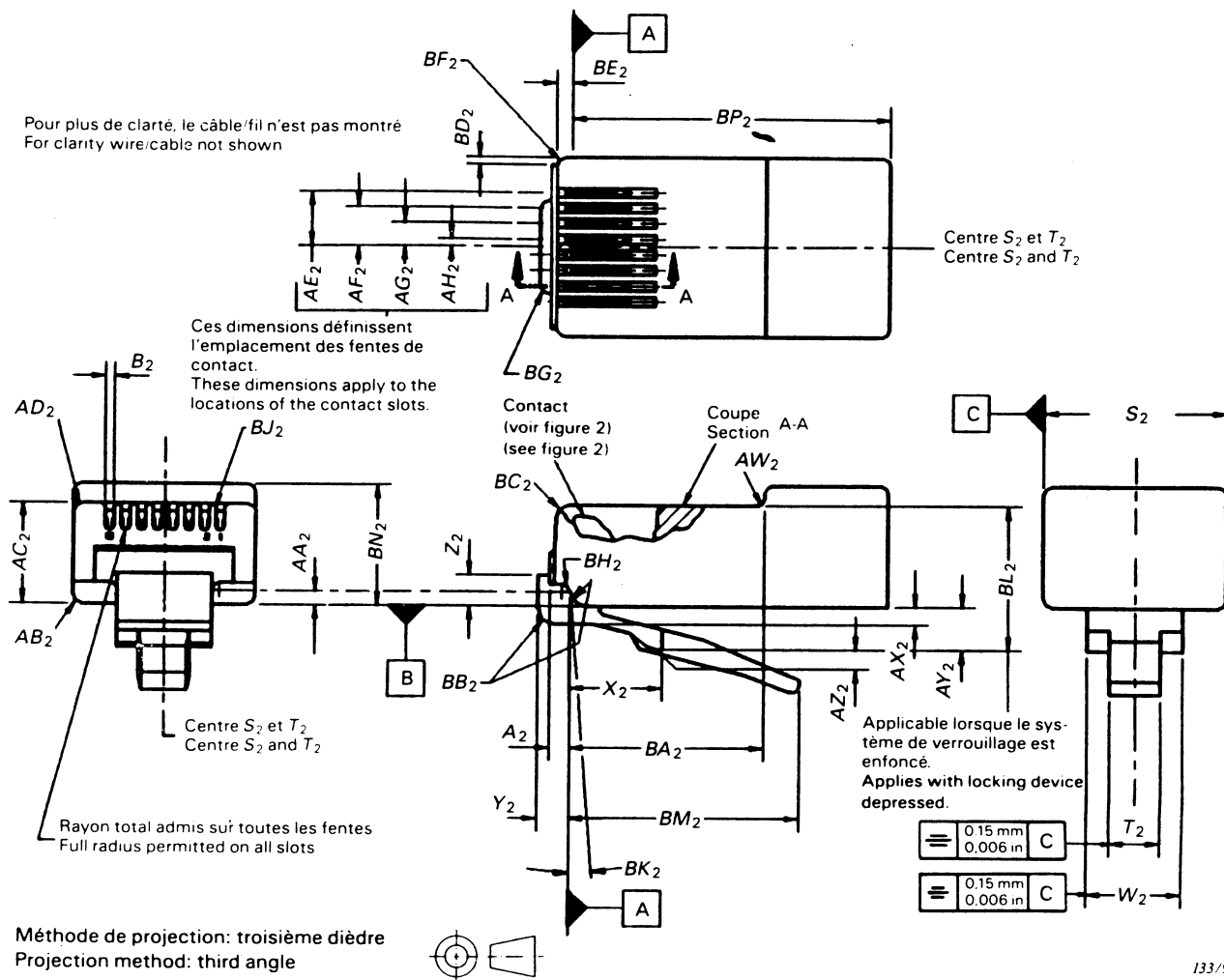


Figure 4

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TABLEAU III

TABLE III

Lettre Letter	Maximum		Minimum		Nominal (ref)	
	mm	in	mm	in	mm	in
A_2					1,17	0,046
B_2					0,58	0,022
S_2	11,79	0,464	11,58	0,456	11,68	0,460
T_2	3,38	0,133	3,12	0,123		
W_2	6,17	0,243	6,02	0,237		
X_2	6,02	0,237	5,77	0,227		
Y_2	2,34	0,092				
Z_2	2,06	0,081				
AA_2			1,24	0,049		
AB_2	0,64	0,025	0,38	0,015		
AC_2	6,71	0,264	6,50	0,256	6,60	0,260
AD_2	0,64	0,025	0,13	0,005		
AE_2	3,61	0,142	3,51	0,138		
AF_2	2,59	0,102	2,49	0,098		
AG_2	1,57	0,062	1,47	0,058		
AH_2	0,56	0,022	0,46	0,018		
AW_2	0,51	0,020	0,25	0,010		
AX_2	1,32	0,052				
AY_2	2,87	0,113	2,67	0,105		
AZ_2	0,64	0,025				
BA_2			12,32	0,485		
BB_2	1,14	0,045	0,38	0,015		
BC_2	1,02	0,040	0,51	0,020		
BD_2			0,51	0,020		
BE_2	1,09	0,043				
BF_2	0,64	0,025				
BG_2	0,64	0,025	0,38	0,015		
BH_2					0,13	0,005
BL_2	8,36	0,329				
BM_2	15,88	0,625	14,61	0,575		
BN_2	8,00	0,315				
BP_2	23,11	0,910				

Lettre Letter	Maximum	Nominal (ref.)
BJ_2		Rayon complet Full radius
BK_2	3°30'	

3.3 Survey of types

TABLE IV

Type and number of contacts	AF8	BF8	CH8
Number of variants	3	7	1
Current-carrying capacity at 70 °C (see Clause 6)	0,2 A		
Minimum creepage and clearance distances ¹⁾			
Creepage distance between contacts and chassis	1,4 mm (0,055 in)		
Clearance distance between contacts and chassis	0,51 mm (0,020 in)		
Creepage distance between adjacent contacts	0,36 mm (0,014 in)		
Clearance distance between adjacent contacts	0,36 mm (0,014 in)		

¹⁾ *Application information:*

Permissible operating voltages depend on the application and the applicable or specified safety requirements.

Insulation co-ordination is not required for this connector; therefore, the creepage and clearance dimensions in IEC 664 and 664A are reduced and covered by overall performance requirements.

Reductions in creepage or clearance distances may occur due to the printed board or the wiring used and shall duly be taken into account.

4. Dimensions

4.1 General

Dimensions are given in millimetres, with inch equivalents. The original dimensions are in inches. Drawings are shown in third angle projection. The shape of connectors may deviate from those shapes given in the following figures as long as the specified dimensions are not influenced.

4.1.1 Contact arrangement of all connector types

TABLE V

Number of contacts	Contact position designation	Contact position							
		1	2	3	4	5	6	7	8
4	A			x	x	x	x		
6	A			x	x	x	x		
6	B	x	x	x	x	x	x	x	x
8	A	x	x	x	x	x	x	x	x

4.2 Type A – Embases (montage sur panneau)

4.2.1 Dimensions

4.2.1.1 Embase, contacts femelles avec fils
volants – variante 01

4.2 Type A – Fixed connectors (panel-mounted)

4.2.1 Dimensions

4.2.1.1 Fixed connector, female contacts with
flying leads – variant 01

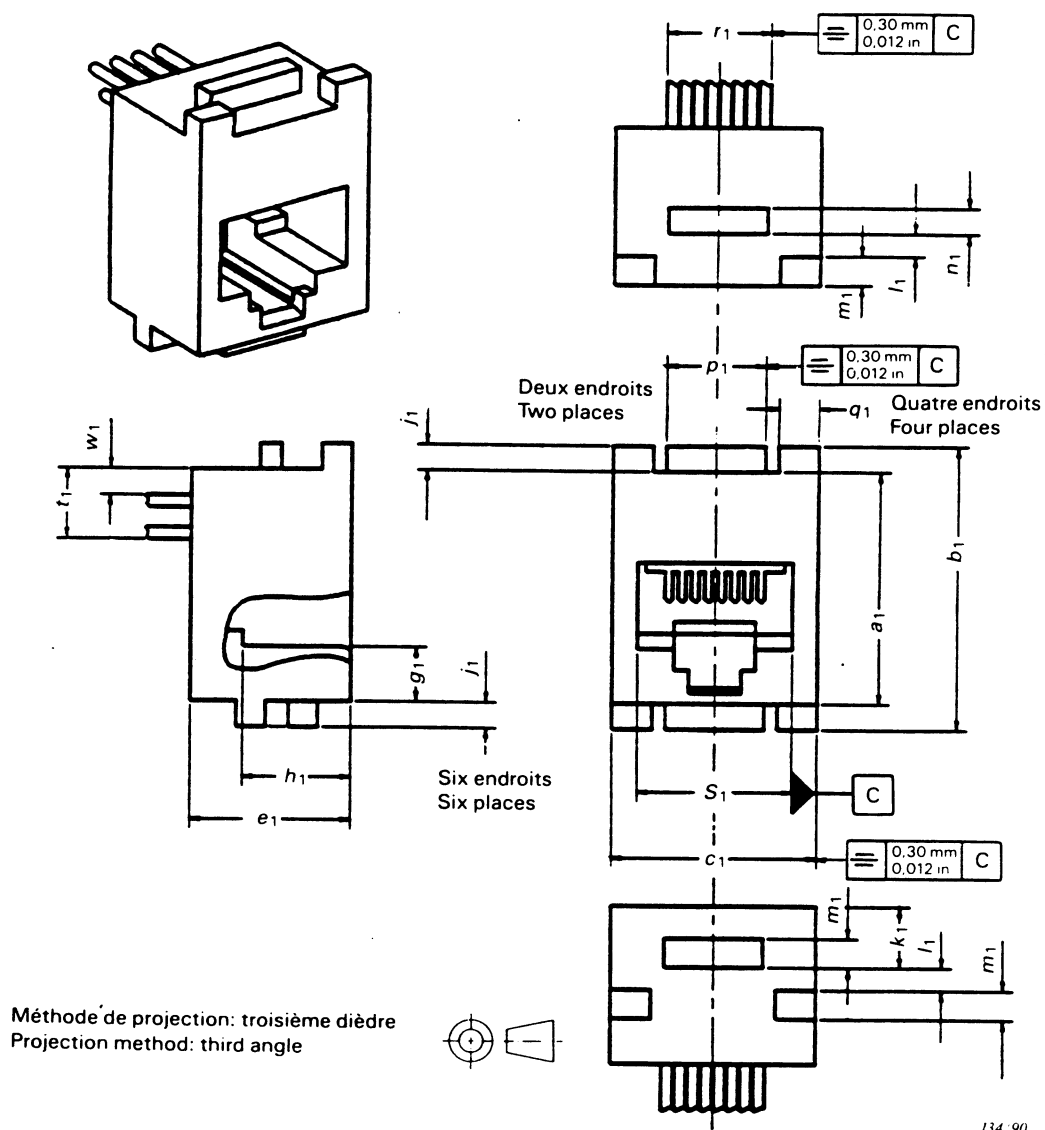


Figure 5

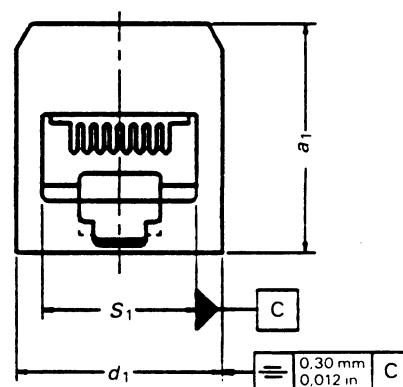
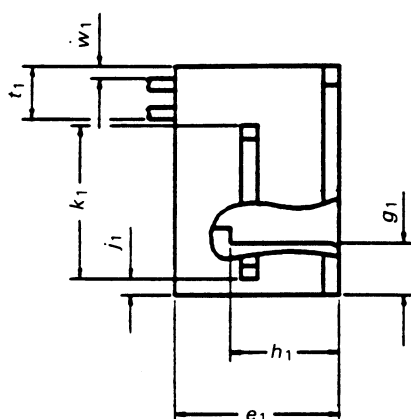
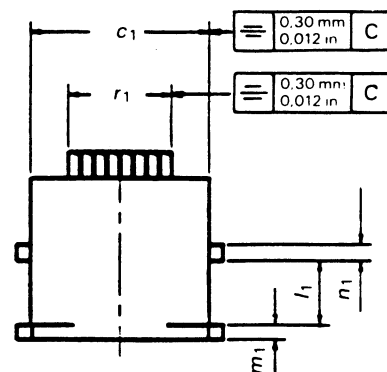
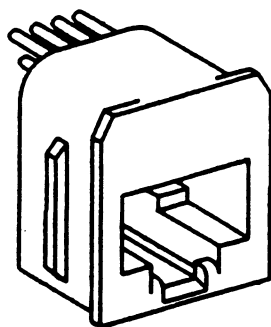
TABLEAU VI

TABLE VI

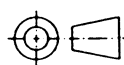
Lettre Letter	Maximum		Minimum		Nominal (ref)	
	mm	in	mm	in	mm	in
a_1	18,54	0,730	18,03	0,710		
b_1	22,86	0,900				
c_1	16,10	0,634	15,60	0,614		
e_1	12,70	0,500	12,19	0,480		
g_1	4,45	0,175	4,19	0,165		
h_1	8,51	0,335				
j_1	2,16	0,085	1,91	0,075		
k_1	5,08	0,200	4,57	0,180		
l_1	1,91	0,075	1,65	0,065		
m_1	2,41	0,095	2,16	0,085		
n_1	2,16	0,085	1,91	0,075		
p_1	7,87	0,310	7,37	0,290		
q_1	3,35	0,132	2,84	0,112		
r_1	10,01	0,394				
t_1	5,72	0,225				
w_1			1,02	0,040		
S_1					11,91	0,469

4.2.1.2 *Embase, contacts femelles avec fils
volants – variante 02*

4.2.1.2 *Fixed connector, female contacts with
flying leads – variant 02*



Méthode de projection: troisième dièdre
Projection method: third angle



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Figure 6