



SLOVENSKI STANDARD SIST EN 3372-001:2009

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Aerospace series - Connectors, electrical, circular, medium and high contact density, scoop-proof with bayonet coupling, operating temperatures - 65 °C to 175 °C or 200 °C continuous - Part 001: Technical specification

STANDARD PREVIEW

Luft- und Raumfahrt - Elektrische Rundsteckverbinder, kontaktgeschützt, Bajonettkupplung, Betriebstemperatur - 65 °C bis 175 °C oder 200 °C konstant - Teil 001: Technische Lieferbedingungen

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Série aérospatiale - Connecteurs électriques circulaires scoop-proof à accouplement par baïonnettes température d'utilisation - 65 °C à 175 °C ou 200 °C continu - Partie 001 : Spécification technique

Ta slovenski standard je istoveten z: EN 3372-001:2007

ICS:

49.060 Š^cp \ aš Ā^• [|b \ æ Aerospace electric
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 3372-001

July 2007

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English Version

Aerospace series - Connectors, electrical, circular, medium and high contact density, scoop-proof with bayonet coupling, operating temperatures - 65 °C to 175 °C or 200 °C continuous - Part 001: Technical specification

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This European Standard was approved by CEN on 24 June 2006.

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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 CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 3372-001:2007) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2008, and conflicting national standards shall be withdrawn at the latest by January 2008.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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EN 3372-001:2007 (E)**Introduction**

This family of connectors is similar to MIL-DTL-38999 series I, with which it is not intermateable or intermountable.

1 Scope

This standard specifies the general characteristics, the conditions for qualification, acceptance and quality assurance, as well as the test programs and groups. These bayonet coupling, scoop-proof, medium and high density connectors are suitable for operating temperatures – 65 °C to 175 °C continuous or 200 °C continuous according to class and model.

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.

EN 2267-002, *Aerospace series — Cables, electrical, for general purpose — Operating temperatures between – 55 °C and 260 °C — Part 002: General*

EN 2282, *Aerospace series — Characteristics of aircraft electrical supplies*

EN 2591-100, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 100: General (and all associated parts)*

EN 3155-002, *Aerospace series — Electrical contacts used in elements of connection — Part 002: List and utilization of contacts*

EN 3197, *Aerospace series — Installation of aircraft electrical and optical interconnection systems¹⁾*

EN 3372-002, *Aerospace series — Connectors, electrical, circular, medium and high contact density, scoop-proof with bayonet coupling, operating temperatures – 65 °C to 175 °C or 200 °C continuous — Part 002: Specification of performance and contact arrangements*

EN 3372-006, *Aerospace series — Connectors, electrical, circular, medium and high contact density, scoop-proof with bayonet coupling, operating temperatures – 65 °C to 175 °C or 200 °C continuous — Part 006: Protective cover for receptacle — Product standard*

EN 3372-009, *Aerospace series — Connectors, electrical, circular, medium and high contact density, scoop-proof with bayonet coupling, operating temperatures – 65 °C to 175 °C or 200 °C continuous — Part 009: Receptacle, jam nut mounting — Product standard*

EN 9133, *Aerospace series — Quality management systems — Qualification procedure for aerospace standard parts*

MIL-C-87937, *Cleaning compound, aircraft surface, alkaline water base²⁾*

¹⁾ Published as an ASD Prestandard on the publication date of this standard

²⁾ Published by: Department of Defense (DOD), the Pentagon, Washington, DC 20301, USA.

MIL-DTL-38999K, *Connectors, electrical, circular, miniature, high density, quick disconnect (bayonet, threaded, breech coupling), environment resistant, removable crimp and hermetic solder contacts, general specification for*²⁾

MIL-H-5606E, *Hydraulic fluid, petroleum base; aircraft; missile and ordnance*²⁾

MIL-HDBK-454A, *General guidelines for electronic equipment*²⁾

MIL-L-7808J, *Lubricating oil, aircraft turbine engine, synthetic base, NATO code number O-248*²⁾

MIL-L-7870A, *Lubricating oil; general purpose, low temperature*²⁾

MIL-L-23699C, *Lubricating oil, aircraft turbine engine, synthetic base*²⁾

SAE-AMS 1424, *Fluid, deicing/anti-icing, aircraft, SAE Type I*³⁾

SAE-AS 1241, *Fire resistant phosphate ester hydraulic fluid for aircraft*³⁾

SAE-AS 39029, *Contacts, electrical connector, general specification for*³⁾

ISO 263, *ISO inch screw threads — General plan and selection for screws, bolts and nuts — Diameter range 0,06 to 6 in*

ISO 4524-1, *Metallic coatings — Test methods for electrodeposited gold and gold alloy coatings — Part 1: Determination of coating thickness*

ISO 4524-5, *Metallic coatings — Test methods for electrodeposited gold and gold alloy coatings — Part 5: Adhesion tests*

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3 Terms and definitions

For the purposes of this standard, the terms and definitions given in EN 2591-100 apply.

4 Description

4.1 General

Different variants of materials, housings and contact arrangements are provided according to the classes dependant on the service conditions.

These connectors use crimp or solder contacts of sizes 22, 20, 16, 12 and 8.

The receptacles and plugs contain either male or female contacts.

The contacts fitted in the class Y receptacles are exclusively of the male solder type.

For arrangements comprising the letter G, some contacts are grounded to the receptacle housing.

The connectors are polarised by means of keyways and keys; polarisation shall be obtained before the male contacts enter the insert of the female contacts and before the coupling ring is engaged. The position of the keying arrangement is given in Table 4.

2) See page 4.

3) Published by: Society of Automotive Engineers, Inc. (SAE), 400 Commonwealth Drive, Warrendale, PA 15096-0001, USA.

EN 3372-001:2007 (E)

The visual check of coupling is obtained by the appearance of the ends of the bayonet pins (blue) through the coupling ring on the plug.

4.2 Receptacle

The receptacle fixing may be attached by:

- square flange;
- jam nut, with sealing by O-ring at the attachment;
- round flange for attachment by soldering/brazing/welding. Class Y only.

The receptacle contains five keyways into which the keys of the plug engage. The secondary keyways are fixed and are narrower than the main keyway. Polarisation is ensured by different angular positions of the main keyway in relation to the secondary keyways. The position of the insert is fixed relative to the secondary keyways.

4.3 Plug

The plug contains five keys that engage in the keyways of the receptacle. The main key is wider than the others. Polarisation is ensured by different angular positions of the main key in relation to the secondary keys. The position of the insert is fixed relative to the secondary keys.

The coupling ring is permanently fitted to the plug and enables the connectors to be coupled and uncoupled. The internal guides of the coupling ring may be treated during manufacture with a suitable lubricant compatible with the performance required by this standard.

The plug is fitted with a grounding spring device, which ensures electrical continuity between coupled connector housings.

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4.4 Materials and surface treatment

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4.4.1 General

When different metals are in close contact, protection against shall be ensured. The electromotive force of the cell shall not exceed 0,25 V (see EN 3197).

4.4.2 Housings

The material of the housings for the connectors and fittings may be either aluminium alloy or passivated stainless steel. Aluminium alloy shall be plated by the class (see EN 3372-002).

4.4.3 Contacts

Unless otherwise specified, contacts shall be in ferrous alloy for classes Y and in copper alloy for other classes.

They shall be gold-plated on an appropriate undercoat. Selective protection is authorised provided that it is sufficient to ensure that the specified performance is achieved. The use of silver undercoats is prohibited.

Measurement of the thickness of the protective plating shall be effected in accordance with ISO 4524-1 (Class Y).

For removable contacts see EN 3372-002.

4.4.4 Non-metallic materials

The materials used for the inserts, seals and grommets shall have hardness, electrical and mechanical characteristics compatible with the required use.

5 Design

5.1 Housings

The connector housings shall be in one unit. The rear of the connector shall contain teeth over its entire periphery that accommodates the rear accessories. The receptacle shall be equipped with a seal for sealing the coupled housings.

Receptacles for attachment by nut shall contain an O-ring seal. The nut shall have holes for the passage of locking wire.

During coupling, the grounding spring shall be engaged a minimum of 1,02 mm in the receptacle before the contacts engage.

Threads shall conform to standard ISO 263, Class 2a.

The coupling ring shall be designed so that the male and female contacts engage when it is turned in a clockwise direction and disengage when it is turned anticlockwise. The coupling ring shall be knurled.

Full locking of the connectors shall occur at approximately 120° of rotation. On completion of tightening of the coupling ring, mechanical contact shall exist between the receptacle and plug housings. The appearance of the ends of the bayonet pins, coloured blue, through the plug coupling ring is a visual indication that the connectors are correctly mated.

5.2 Inserts

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The insert carrying the male and female contacts shall be in hard material and have a cross section and radii such that no cracks, flaking or breaks can occur in normal operation.

The insert for contacts shall be non-removable; it shall be mechanically held in the housing. Sealing shall be provided between the housing and insert.

The front face of the insert shall be such that sealing is ensured when the connectors are coupled. The interfacial seal of the insert of the male contacts shall be bonded on the hard insert.

The grommet shall permit sealing for all cable diameters indicated in EN 3372-002 and shall not be removable.

The mechanical contact retention system shall be integrated in the hard insert.

The design of non-hermetic connectors shall permit individual installation of the contacts without removal of the insert or grommet. Fitting and removal of the contacts shall be from the rear with the tools specified in the contact product standards.

EN 3372-001:2007 (E)**6 Definition drawings and masses****6.1 General**

The general dimensions and the masses of receptacles, plugs and protective covers are given in the product standards. All dimensions are in mm.

6.2 Receptacle mating dimensions

The general dimensions of receptacles are shown in Figures 1, 2 and 3 and in Tables 1 and 2.

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Table 1 — Receptacle mating dimensions

Dimensions in millimetres

Housing size	d_1 +0,13 -0,03	d_2 0 -0,41	d_3 min.	d_4 max.	d_5 max.	d_6 +0,15 -0,05	l_1
8	9,19	14,3	10,31	7,37	12,04	1,98	
10	12,45	17,27	13,57	10,52	15,02		
12	15,42	21,82	17,35	13,49	19,08		
14	18,59	24,99	20,53	16,66	22,26		
16	21,77	28,14	23,70	19,83	25,43		
18	24,43	31,32	26,24	22,10	28,61		
20	27,61	34,49	29,42	25,27	31,78		
22	30,78	37,67	32,59	28,45	34,96	3,18	2,77
24	33,96	40,89	35,77	31,62	38,13		

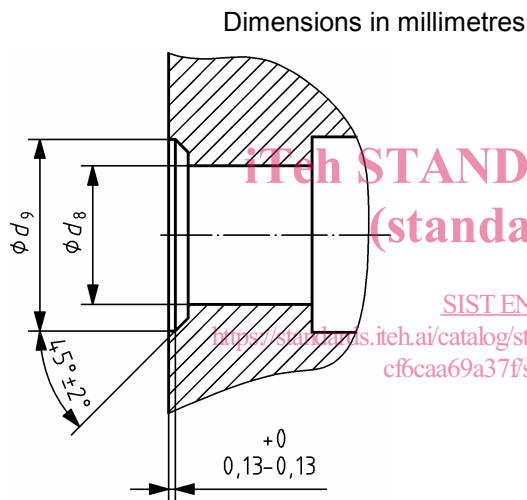


Figure 2 — Detail of socket entry

Dimensions in millimetres

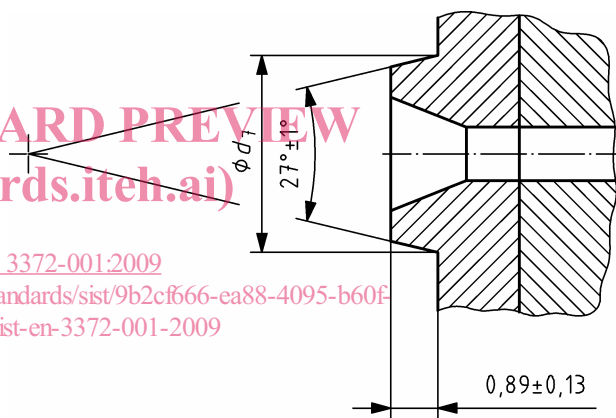


Figure 3 — Detail of pin barrier

Table 2 — Detail dimensions

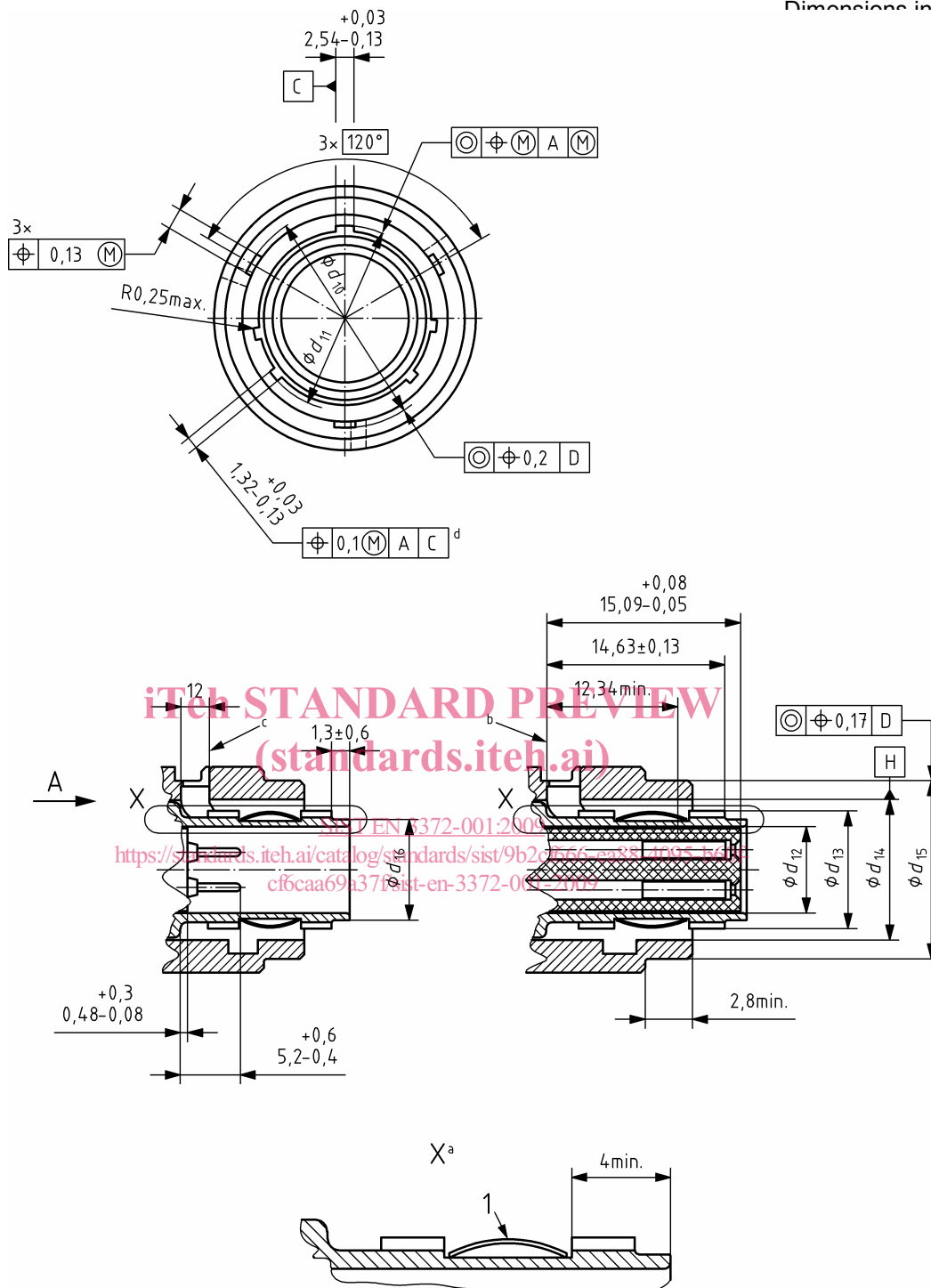
Dimensions in millimetres

Contact size	D_7 +0,2 0	D_8	Tol	d_9 +0,05 -0,05
22	1,75	0,89	+ 0,08	1,65
20	2,31	1,24		2,21
16	2,90	1,8		2,79
12	3,71	2,61		3,61
8	6,90	5,77	+ 0,07	6,76

6.3 Plug mating dimensions

The mating dimensions of plugs are shown in Figure 4 and Table 3.

Dimensions in millimetres

**Key**

1 Grounding spring

a Plug with grounding spring (shown without coupling ring).

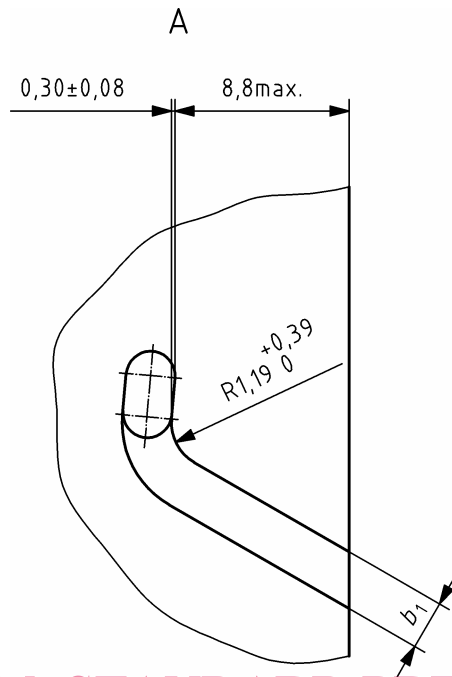
b Point at which a square ended gauge pin with the same diameter as the mating contact first engages with female contact tines.

c Distance from shoulder of connector to locking point.

d Keys with maximum dimension shall be sharp-edged. If the maximum dimensions are not achieved appropriate radii are permissible. (0,25 mm max.).

Figure 4 — Plugs

Dimensions in millimetres



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View of coupling ring

Hole (configuration optional) for visual inspection of coupling ring.

Tolerances on distances between holes 0,25 mm

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Figure 4 (concluded)

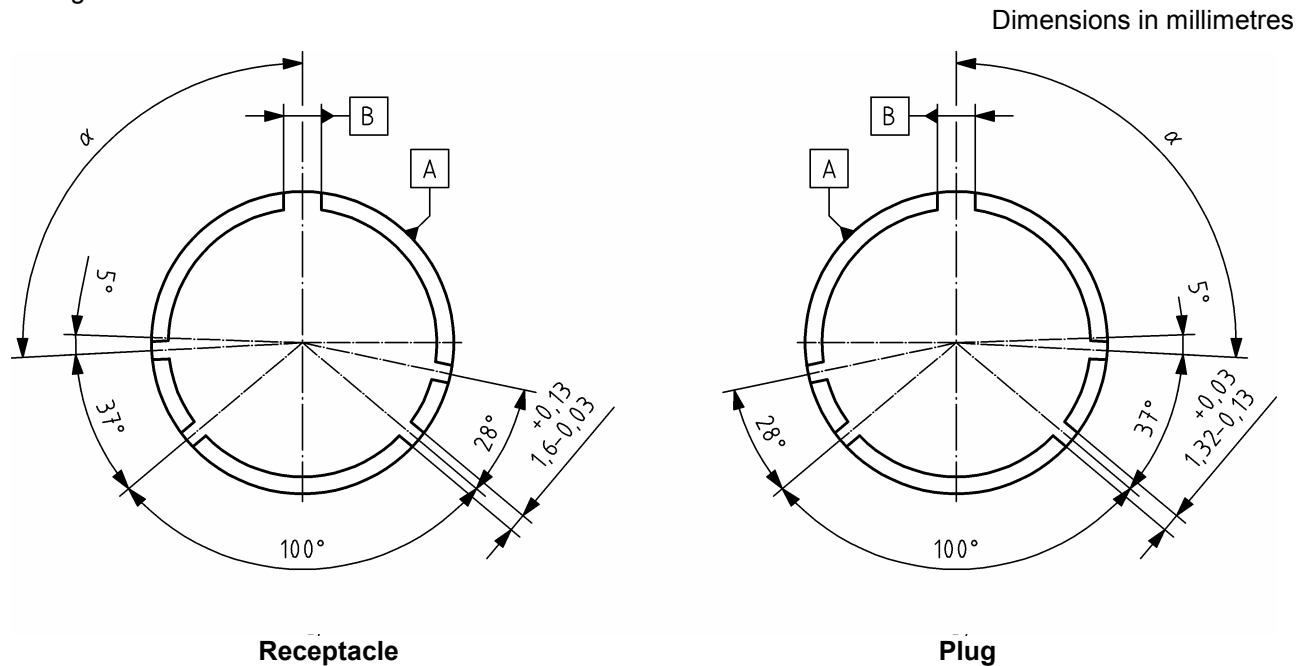
Table 3 — Plugs dimensions

Dimensions in millimetres

Housing size	b_1 +0,4 -0,04	d_{10} min.	d_{11} +0,3 -0,03	d_{12} min.	d_{13} +0,13 -0,03	d_{14} +0,13 -0,25	d_{15} +0,13 -0,25	d_{16} max.	l_2 +1 0
8	2,29	7,44	9,07	8,56	12,22	10,21	14,63	16,0	2,36
10		10,56	12,32	11,81	15,29	13,46	17,7	19,1	
12		13,54	15,16	14,15	19,33	17,25	22,12	23,5	
14		16,71	18,34	17,83	22,48	20,42	25,27	26,7	
16		19,88	21,51	21,0	25,65	23,6	28,45	29,8	
18		22,42	24,05	23,55	28,85	26,14	31,62	33,1	
20		25,6	27,23	26,72	32,00	29,31	34,8	36,5	
22	28,77	30,40	29,9	35,18	32,49	37,97	39,6	3,35	
24	3,48	31,95	33,58	33,07	38,35	35,66	41,25		42,9

6.4 Receptacle and plug polarisation

See Figure 5 and Table 4.



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Figure 5 — Polarisation

Table 4 — Polarisation index

Housing size	Polarisation index	Angular position in degrees	
		α	
8	N	95	
	A	77	
	B	Not available	
	C	Not available	
	D	113	
10	N	95	
	A	81	
	B	67	
	C	123	
	D	109	
12	N	95	
	A	75	
	B	63	
	C	127	
	D	115	
14	N	95	
	A	74	
	B	61	
	C	129	
	D	116	
16	N	95	
	A	77	
	18	B	65
		20	C
	D		113
22	N		95
	24	A	80
		B	69
	C	121	
	D	110	