BRITISH STANDARD

BS EN
3218-002:2006

Aerospace series — Connectors, rectangular, with metallic shells and screw-locking —

Part 002: Specification of performance and contact arrangements

The European Standard EN 3218-002:2006 has the status of a British Standard

ICS 49.060

BSI
British Standards

National foreword

This British Standard was published by BSI. It is the UK implementation of EN 3218-002:2006.

The UK participation in its preparation was entrusted by Technical Committee ACE/6, Aerospace avionic electrical and fibre optic technology, to Subcommittee ACE/6/-/3, Aerospace — Connectors.

A list of organizations represented on ACE/6/-/3 can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Série aérospatiale - Connecteurs rectangulaires à boîtiers métalliques et à verrouillage par vis - Partie 002 : Spécification de performances et d'arrangements des contacts

Luft- und Raumfahrt - Rechtecksteckverbinder mit metallischem Gehäuse und Schraubverriegelung - Teil 002: Leistungsdaten und Kontaktanordnungen

This European Standard was approved by CEN on 27 February 2006.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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Foreword

This document (EN 3218-002:2006) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-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 AECMA, 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of an identical text or by endorsement, at the latest by October 2006, and conflicting national standards shall be withdrawn at the latest by October 2006.

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1 Scope

This standard specifies the performance and contact arrangements of rectangular connectors with metallic shells and screw-locking as defined in EN 3218-001.

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 2265-002, *Aerospace series – Cables, electrical, for general purpose – Operating temperatures between − 55 °C and 150 °C – Part 002: General.* [1)]

EN 2266-002, *Aerospace series – Cables, electrical, for general purpose – Operating temperatures between − 55 °C and 200 °C – Part 002: General.*

EN 2591-209, *Aerospace series – Elements of electrical and optical connection – Test methods – Part 209: Current temperature derating.*

EN 3155-022, *Aerospace series – Electrical contacts used in elements of connection – Part 022: Contacts, electrical rectangular, male, type A, crimp, class R – Product standard.*

EN 3155-023, *Aerospace series – Electrical contacts used in elements of connection – Part 023: Contacts, electrical rectangular, female, type A, crimp, class R – Product standard.*

EN 3197, *Aerospace series – Installation of aircraft electrical and optical interconnection systems.* [1)]

EN 3218-001, *Aerospace series – Connectors, rectangular, with metallic shells and screw-locking – Part 001: Technical specification.*

EN 3218-005, *Aerospace series – Connectors, rectangular, with metallic shells and screw-locking – Part 005: Plug with non-removable size 22 solder contacts – Product standard.*

EN 3218-006, *Aerospace series – Connectors, rectangular, with metallic shells and screw-locking – Part 006: Receptacle with non-removable size 22 solder contacts – Product standard.*

EN 3218-007, *Aerospace series – Connectors, rectangular, with metallic shells and screw-locking – Part 007: Plug with rear-removable size 20 crimp contacts – Product standard.*

EN 3218-008, *Aerospace series – Connectors, rectangular, with metallic shells and screw-locking – Part 008: Receptacle with rear-removable size 20 crimp contacts – Product standard.*

EN 3218-009, *Aerospace series – Connectors, rectangular, with metallic shells and screw-locking – Part 009: Protective covers for EN 3218-005 and EN 3218-007 connectors – Product standard.*

EN 3218-010, *Aerospace series – Connectors, rectangular, with metallic shells and screw-locking – Part 010: Protective covers for EN 3218-006 and EN 3218-008 connectors – Product standard.*

EN 3218-011, *Aerospace series – Connectors, rectangular, with metallic shells and screw-locking – Part 011: Tool, insert extraction for EN 3218-005 to EN 3218-008 connectors – Product standard.*

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1) Published as AECMA Pre-standard at the date of publication of this standard.

EN 4008-003, *Aerospace series – Elements of electrical and optical connection – General accessories and tooling – Part 003: Filler plugs for contacts used in elements of electrical connection – Product standard.*[2)]

3 Coding of connector models and finishing of housings

See Table 1.

Table 1

Code	Connector model	Code	Finishing of housing
A	Receptacle	A	Anodized
D	Plug	C	Cadmium-plated
T	Protective cover for plug	N	Nickel-plated
U	Protective cover for receptacle		

4 Definitions

See EN 3218-001.

5 Operating conditions

5.1 Mating of plug and receptacle

A plug shall be mated with a receptacle having the same finish.

5.2 Mating of protective cover and connector

The protective cover shall have the same finish as the plug or receptacle to which it is fitted.

5.3 Type of termination

See Table 2.

2) In preparation at the date of publication of this standard.

Table 2

Code	Type of termination	
1C	1C - Crimp contact, size 22, front-removable	
1C0	1C0	Without contacts
1C1	1C1	With contacts for cable size code 006 [a]
1C2	1C2	With contacts for cable sizes codes 004 and 002 [a]
1C3	1C3	With contacts for cable size code 001 [a]
2D	2D - Fixed solder contact, size 22	
2D1	2D1	With contacts for cable sizes codes 002, 004, 006 and 010 [a]
2D2	2D2	With contacts for cable sizes codes 001, 002, 004 and 006 [a]
2F	2F - Crimp contact, size 20, rear-removable	
2F0	2F0	Without contacts
2F1	2F1	With contacts for cable sizes codes 001, 002, 004 and 006 [a]

[a] According to Table 3.

5.4 Permissible cables

The connectors covered by this standard shall be used with cables which dimensions are defined in Table 3.

Table 3

Size code [a]	Section	AWG [b]	Diameter on insulation	
	mm^2		mm	
			min.	max.
010 [c]	1,00	18	1,44	1,60
006	0,60	20	1,20	1,60
004	0,40	22	0,96	1,35
002	0,25	24	0,82	1,35
001	0,15	26	0,72	1,02

[a] See EN 2265-002 or EN 2266-002.

[b] Closest American Wire Gauge.

[c] Cable usable only for solder contacts.

5.5 Operating characteristics

5.5.1 Electrical characteristics

Heating: see EN 3218-001 and EN 2591-209.

Insulation resistance at room temperature: 5 000 MW

Withstand voltage: – at sea level: 1 500 V root-mean-square value
– 1,1 kPa (30 000 m): 400 V root-mean-square value

Permissible current per contact: according to contact standards

5.5.2 Climatic characteristics

Operating temperature: from – 65 °C to 150 °C

Resistance to corrosion and fluids: see EN 3218-001.

5.5.3 Mechanical characteristics

Number of mating and unmating operations: 500

6 List of product standards

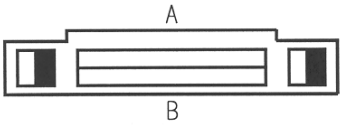
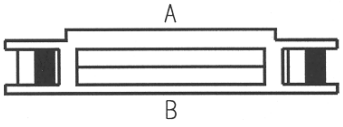
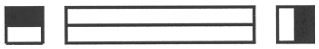
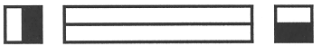
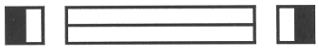
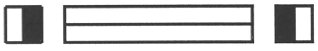
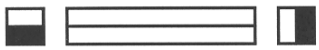
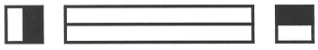
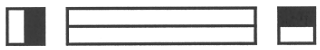
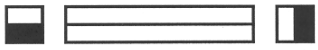
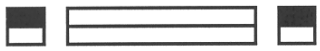
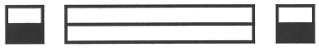
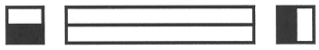
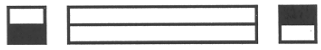
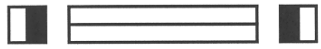
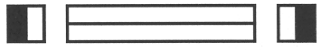
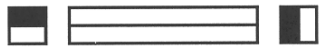
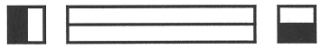
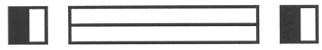
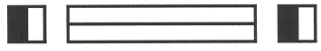
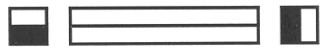
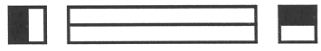
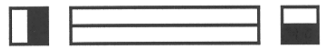
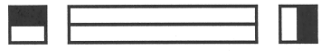
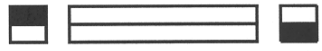
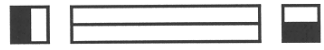
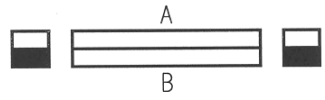
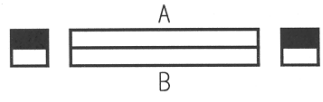
EN 3218-005, EN 3218-006, EN 3218-007, EN 3218-008, EN 3218-009, EN 3218-010 and EN 3218-011.

7 Polarization and coding

Coding is done by the user.

See Table 4.

Table 4

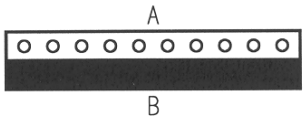
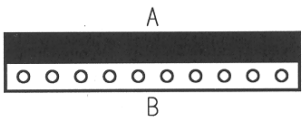
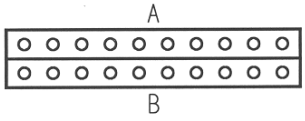
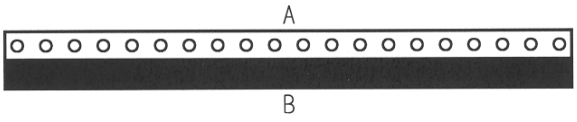
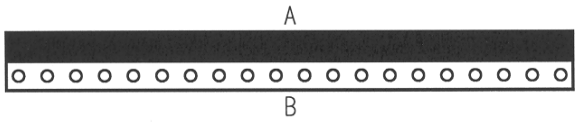
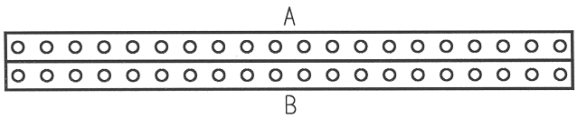
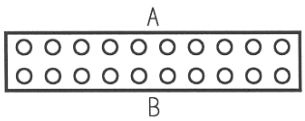
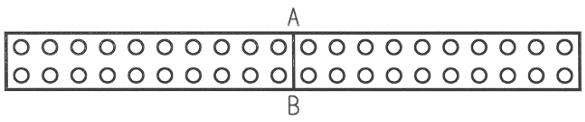
Receptacle	Code	Plug
	AA	
	AB	
	AC	
	AD	
	BA	
	BB	
	BC	
	BD	
	CA	
	CB	
	CC	
	CD	
	DA	
	DB	
	DC	
	DD	

NOTE The black area represents the position of the coding pin.
The position of the connector coding keys between connectors is the view on the mating face.

8 Contact arrangements

See Table 5.

Table 5

Arrangement code		View on mating face	Number of contacts	Size of contacts
Male contacts	Female contacts			
M11	F11		10	22
M12	F12		10	22
M13	F13		20	22
M21	F21		20	22
M22	F22		20	22
M23	F23		40	22
M14	F14		20	20
M24	F24		40	20

The equivalent sizes 20 and 22 contact arrangements in the same housing size are intermateable.

For example, arrangement M13 with size 22 male contacts is intermateable with arrangement F14 with size 20 female contacts. In this case, the maximum permissible current is that of the smallest contact.

9 Contacts

The solder contacts are integral with the inserts.

The removable crimp contacts are defined in:

— EN 3155-022, male contact size 20;

— EN 3155-023, female contact size 20.

The connector operating temperature shall be limited to the maximum operating temperature indicated in the contact product standards.

10 Filler plugs

See EN 4008-003.

11 Tools

The tools for crimping and the insertion and extraction tools for removable contacts are given in the product standards.

12 Marking

See EN 3218-001.

13 Assembly and wiring instructions

See EN 3197.

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389 Chiswick High Road
London
W4 4AL