BRITISH STANDARD

BS EN
3660-018:2009

Aerospace series — Cable outlet accessories for circular and rectangular electrical and optical connectors

Part 018: Cable outlet, style A, 90°, unsealed, with cable tie strain relief — Product standard

ICS 49.060

BSI
British Standards

National foreword

This British Standard is the UK implementation of EN 3660-018:2009.

The UK participation in its preparation was entrusted to Technical Committee ACE/6, Aerospace avionic electrical and fibre optic technology.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Aerospace series - Cable outlet accessories for circular and rectangular electrical and optical connectors - Part 018: Cable outlet, style A, 90°, unsealed, with cable tie strain relief - Product standard

Série aérospatiale - Accessoires arrière pour connecteurs circulaires et rectangulaires électriques et optiques - Partie 018: Raccord coudé 90° non étanche, type A, avec tenue du câble par frettage - Norme de produit

Luft- und Raumfahrt - Endgehäuse für elektrische und optische Rund- und Rechtecksteckverbinder - Teil 018: Endgehäuse, Bauform A, 90°, nicht abgedichtet, mit Arm für Kabelbinder - Produktnorm

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Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 3660-018:2009: E

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Foreword

This document (EN 3660-018:2009) 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of an identical text or by endorsement, at the latest by September 2009, and conflicting national standards shall be withdrawn at the latest by September 2009.

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1 Scope

This product standard defines a range of cable outlets, style A, 90°, unsealed, with cable tie strain relief.

Associated electrical connector(s) : see EN 3660-002.

Temperature range, Class A : – 65 °C to 200 °C
Class N : – 65 °C to 200 °C
Class W : – 65 °C to 175 °C

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 2424, *Aerospace series — Marking of aerospace products.*

EN 2591-100*, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 100: General.*

EN 3660-001, *Aerospace series — Cable outlet accessories for circular and rectangular electrical and optical connectors — Part 001: Technical specification.*

EN 3660-002, *Aerospace series — Cable outlet accessories for circular and rectangular electrical and optical connectors — Part 002: Index of product standards*.

EN 3660-036, *Aerospace series — Cable outlet accessories for circular and rectangular electrical and optical connectors — Part 036: Spacer spad — Product standard.* 1)

AS85049A, *Connector accessories, electrical general specification for.*2)

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 3660-001 apply.

4 Characteristics

4.1 Dimensions and masses

For dimensions and masses, see Figure 1, Figure 2c) and Table 1.

Dimensions and tolerances are in millimetres.

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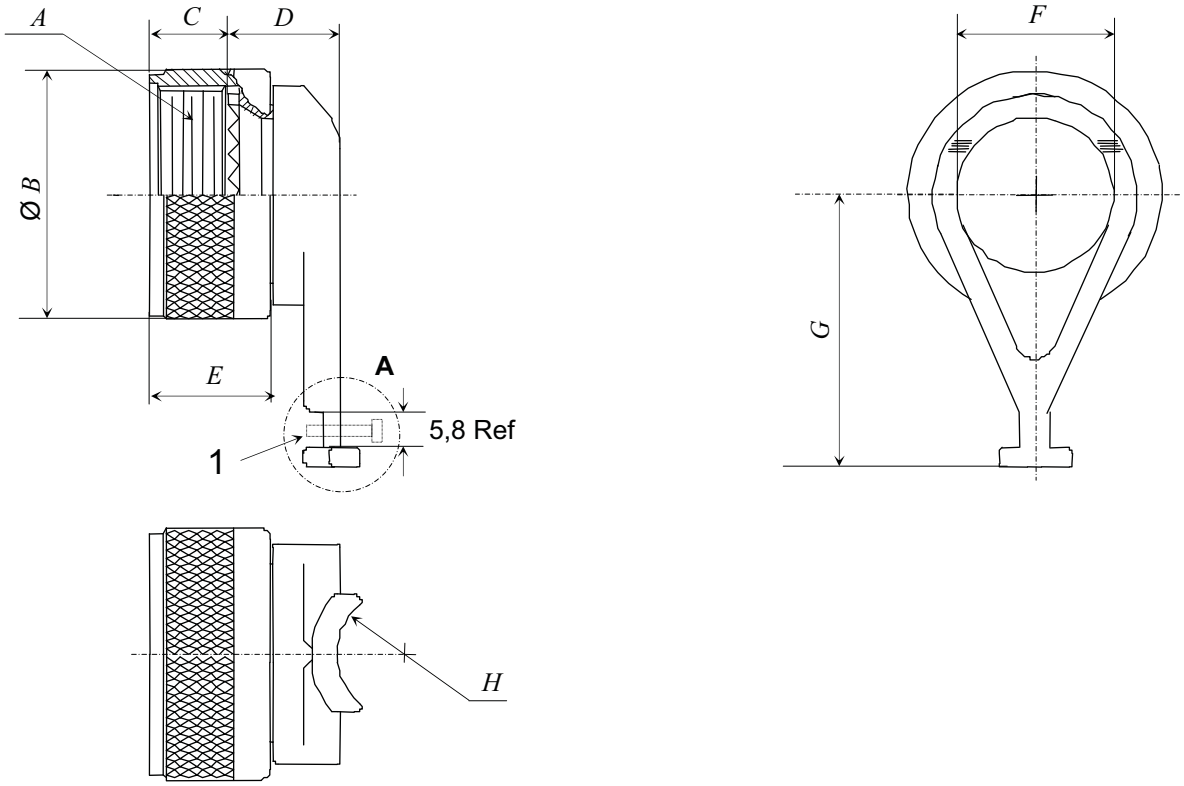
* All its parts quoted in this standard.

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

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



Key

1 Cable tie or lace cord

Figure 1

Detail A: see Figures 2a) to 2e).

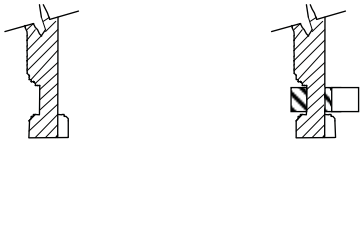


Figure 2a) — Without ground lug and spacer pad

Figure 2b) — Without ground lug and with spacer pad

Figure 2c) — With ground lug and without spacer pad

Figure 2d) — With ground lug and spacer pad

Figure 2e) — Spacer pad see EN 3660-036

Table 1

Shell size	*A* Thread	*Ø B* Without self-locking max.	*Ø B* With self-locking max.	*C* [a] ± 0,38	*D* max.	*E* max.	*F* min.	*Ø G* Without lug max.	*Ø G* With lug max.	*H* Rad	Number of teeth	Without self-locking Masses max. Classes A, N and W g	With self-locking Masses max. Classes A, N and W g
09	M12x1-6H	19,60	24,80	6,29	11,80	12,50	7,59	22,60	24,60	2,11	12	5,5	6,5
11	M15x1-6H	20,80	26,90	6,29	12,60	12,50	10,85	24,10	26,10	2,87	16	6,0	7,5
13	M18x1-6H	23,90	29,70	6,29	13,60	12,50	13,74	27,20	29,20	3,81	20	7,5	9,0
15	M21x1-6H	27,20	32,70	6,29	14,60	12,50	16,92	33,80	35,80	4,77	24	11,0	13,0
17	M25x1-6H	30,70	36,10	6,29	15,00	12,50	20,09	35,30	37,30	5,66	28	12,5	14,5
19	M28x1-6H	34,50	39,10	6,29	17,40	12,50	22,18	37,60	39,60	7,13	32	13,5	16,0
21	M31x1-6H	37,60	42,40	6,29	17,40	12,50	25,96	42,20	44,20	7,13	36	15,0	18,5
23	M34x1-6H	40,60	51,10	6,29	18,20	12,50	29,13	47,00	49,00	7,82	40	17,5	20,5
25	M37x1-6H	43,20	53,80	6,29	19,20	12,50	32,31	48,50	48,50	8,89	44	20,5	25,0

[a] "*C*" dimensions is taken when the coupling nut is pulled in forward position.

4.2 Interface dimensions

4.2.1 Associated connectors

See EN 3660-002.

4.2.2 Standard AS85049 interface

See Figure 3 and Table 2.

All dimensions in millimetres.

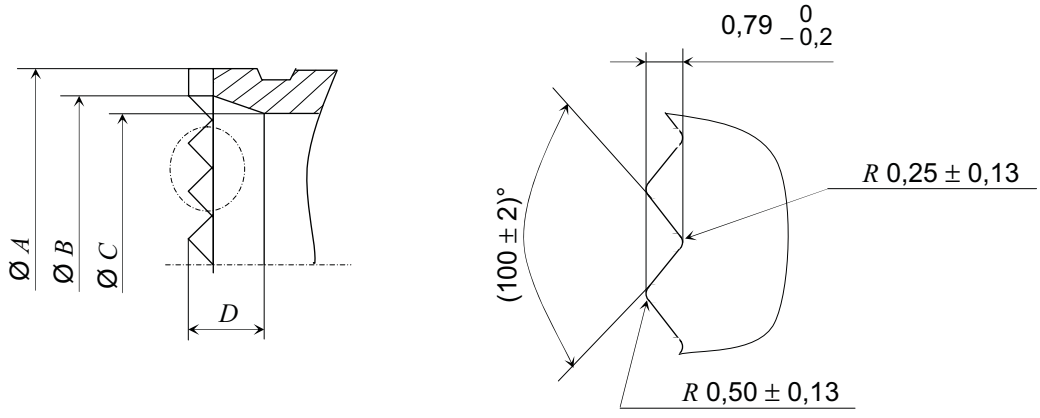


Figure 3

Table 2

Shell size	Ø *A* $^{0}_{-0,15}$ mm	Ø *B* max. mm	Ø *C* min. mm	*D* min. mm	*N* **Number of teeth**
09	10,57	8,50	7,59	2,90	12
11	13,56	12,07	10,85	2,90	16
13	16,58	14,96	13,74	2,90	20
15	20,57	18,14	16,92	2,90	24
17	23,57	21,21	20,09	2,90	28
19	25,57	24,00	22,18	2,90	32
21	29,97	27,08	25,96	2,90	36
23	32,56	30,35	29,13	2,90	40
25	35,56	33,53	32,31	1,70	44

4.3 Material and finish

Cable outlet: Class A : Aluminium/black anodised

Class N : Aluminium/electroless nickel plated

Class W : Aluminium/olive drab cadmium plated

Spacer pad: See EN 3660-036.

4.4 Assembly torque

These torque values are intended for installation use only.

See Table 3.

Table 3

Shell size	**Torque** Nm ± 0,5
09	7,80
11	10,60
13	15,20
15	16,30
17	16,30
19	16,30
21	19,10
23	19,10
25	19,10

4.5 Tests according to EN 2591-100

Test details to be in accordance with Table 4, EN 3660-001 and EN 2591-100.

Qualification to be in accordance with EN 3660-001.

Table 4

EN 2591-	Designation of the test	Not applicable	Applicable see EN 3660-001	Details
101	Visual examination		X	—
102	Examination of dimensions and mass		X	See 4.1.
205	Housing (shell) electrical continuity		X	Only class N and W and only if with grounding lug option: 5 mΩ
212	Surface transfer impedance (from 100 MHz to 1 GHz) [a]	X		—
301	Endurance at temperature		X	According to class Only self-locking version and specify.
305	Rapid change of temperature	X		—
306	Mould growth		X	See EN 3660-001.
307	Salt mist		X	Cable outlet not fitted to a connector and suspended with non metallic cord. Duration: Classes A and N 48 h Class W 500 h
308	Sand and dust	X		—
314	Immersion at low air pressure	X		—
315	Fluid resistance		X	Only self-locking versions and with spacer pad.
316	Ozone resistance		X	With spacer pad only
317	Flammability		X	With spacer pad only
318	Fire-resistance	X		—
402	Shock		X	Method A. Severity: 100 g
403	Sinusoidal and random vibration		X	Method B. Level J.
406	Mechanical endurance		X	10 cycles
408	Mating and unmating forces		X	See 4.4, Table 3.

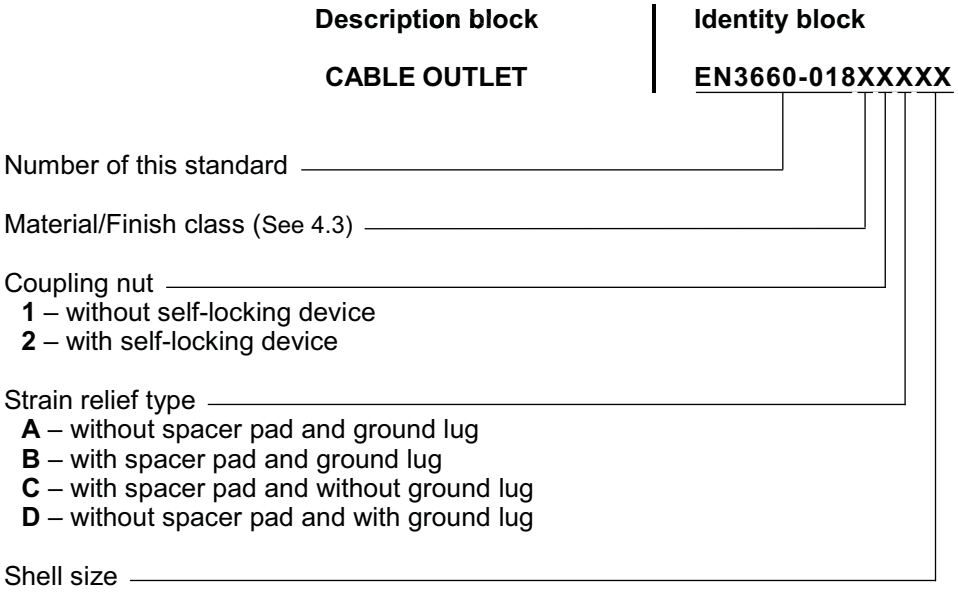
continued

Table 4 *(concluded)*

<table>
<tr><th>EN 2591-</th><th>Designation of the test</th><th>Not applicable</th><th>Applicable see EN 3660-001</th><th>Details</th></tr>
<tr><td>420</td><td>Mechanical strength of rear accessories</td><td></td><td>X</td><td><table><tr><th>Shell size</th><th>Torque
N</th></tr><tr><td>09</td><td>108</td></tr><tr><td>11</td><td>108</td></tr><tr><td>13</td><td>108</td></tr><tr><td>15</td><td>217</td></tr><tr><td>17</td><td>217</td></tr><tr><td>19</td><td>217</td></tr><tr><td>21</td><td>326</td></tr><tr><td>23</td><td>326</td></tr><tr><td>25</td><td>435</td></tr></table></td></tr>
<tr><td>422</td><td>Locking wire hole strength</td><td>X</td><td></td><td>—</td></tr>
<tr><td>513</td><td>Magnetic permeability</td><td></td><td>X</td><td>Not fitted to a connector.
Max values:
Classes A, N and W 2,0</td></tr>
<tr><td colspan="5">[a] 1 GHz to 10 GHz under consideration.</td></tr>
</table>

5 Designation

EXAMPLE 1



EXAMPLE 2 **EN3660-018A1A09** Style A, cable outlet, aluminium/black anodised, without self-locking, without spacer pad and ground lug, shell size 09.

NOTE 1 No gaps are required between sections in the part number when printed.

NOTE 2 If necessary, the code I9005 may be placed between the description block and the identity block.

6 Marking

According to EN 2424, category P.

7 Technical specification

Refer to EN 3660-001.

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