BRITISH STANDARD

BS EN
3660-006:2010

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

Part 006: Cable outlet, self-locking, style C, straight, shielded (cone grounding), unsealed with clamp strain relief — Product standard

ICS 49.060

National foreword

This British Standard is the UK implementation of EN 3660-006:2010.

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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Aerospace series - Cable outlet accessories for circular and rectangular electrical and optical connectors - Part 006: Cable outlet, self-locking, style C, straight, shielded (cone grounding), unsealed with clamp strain relief - Product standard

Série aérospatiale - Accessoires arrière pour connecteurs circulaires et rectangulaires électriques et optiques - Partie 006: Raccord type C, droit, non étanche, auto-freinant avec reprise de blindage (par cône) et brides serre-câble - Norme de produit

Luft- und Raumfahrt - Endgehäuse für elektrische und optische Rund- und Rechtecksteckverbinder - Teil 006: Endgehäuse, selbstsichernd, Bauform C, gerade Ausführung, Schirmanschluß (Konusring), nicht abgedichtet, mit Zugentlastungsklemme - Produktnorm

This European Standard was approved by CEN on 11 April 2007.

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Foreword

This document (EN 3660-006:2010) 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.

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1 Scope

This product standard defines a range of cable outlets, style C, anti-decoupling, straight, shielded (cone grounding), unsealed with clamp strain relief for use under the following conditions:

The cable outlet permits the termination of individual and/or overall screens for thickness from 0,8 mm to 4,8 mm.

Associated electrical connector(s) : EN 3660-002

Temperature range, Class N : – 65 °C to 200 °C;
Class W : – 65 °C to 175 °C;
Class K : – 65 °C to 260 °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 2591-100 [1)], *Aerospace series — Elements of electrical and optical connection — Test methods — Part 100: General*

EN 3660-001:2006, *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*

AS85049B, *Connector Accessories, Electrical General Specification for-* [2)]

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 3660-001:2006 apply.

1) As well as all its parts quoted in this standard.

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

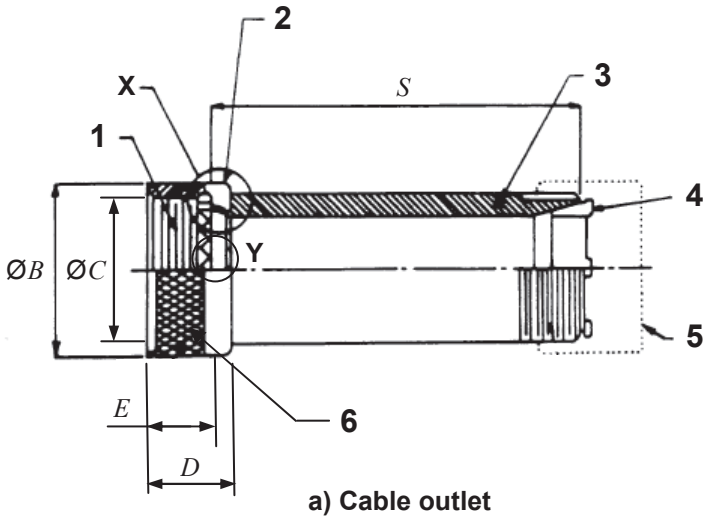
4 Characteristics

4.1 Dimensions and mass

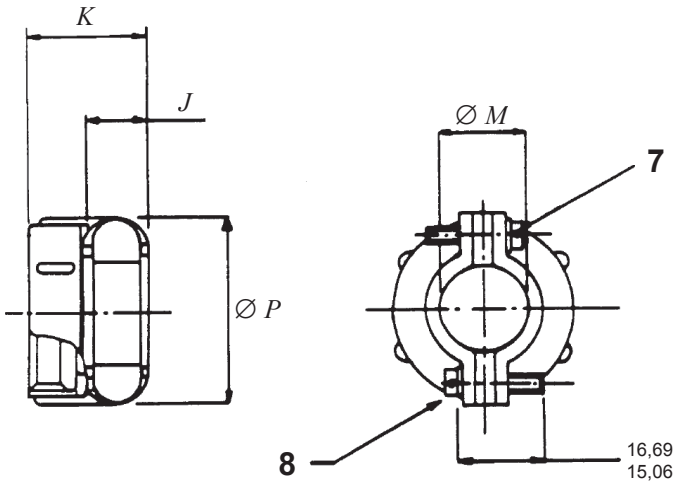
For dimensions and mass see Figure 1 and Table 1.

For interface dimensions see 4.2.

All dimensions in millimetres.



a) Cable outlet



b) Clamp forms integral part of the cable outlet assembly

Key

1 Thread *A*
2 Anti-decoupling device
3 Three equally spaced holes for max. 0,80 mm lockwire (optional)
4 Cone grounding
5 Clamp
6 Knurl
7 Hole to accommodate max. 0,80 mm lockwire
8 Screw and lockwasher

NOTE 1 For details X and Y, see 4.2.2.

NOTE 2 Coupling nut to be captive on cable outlet body but free to rotate and shall have an anti-decoupling device.

Figure 1

Table 1

Shell size	*A* **Thread Class 2B** inches	Ø *B* max. mm	Ø *C* $^{+0,64}_{0}$ mm	*D* $^{0}_{-1,57}$ mm	*E* [a] $^{0}_{-0,56}$ mm	*J* ± 0,25 mm	*K* [b] max. mm	Ø *M* ± 0,76 mm	Ø *P* max. mm	*S* Length $^{0}_{-2,0}$ mm	**Screw size Class A** inches	**Mass**
08	0.500-20UNF	19,05	12,74	13,72	7,75	6,35	22,38	6,35	21,41	25,40	6-32UNC	
10	0.625-24UNEF	22,35	15,88	13,72	7,75	6,35	23,98	11,12	27,76	25,40	6-32UNC	
12	0.750-20UNEF	25,40	19,05	13,72	7,75	6,35	25,58	14,28	30,94	25,40	6-32UNC	
14	0.875-20UNEF	28,70	22,23	13,72	7,75	6,35	25,58	15,88	32,54	25,40	6-32UNC	
16	1.000-20UNEF	31,75	25,40	13,72	7,75	9,52	25,58	19,05	38,10	25,40	6-32UNC	
18	1.063-18UNEF	33,53	27,00	13,72	7,75	9,52	25,58	19,05	38,10	31,75	8-32UNC	c
20	1.188-18UNEF	36,58	30,18	13,72	7,75	9,52	27,94	23,83	43,66	31,75	8-32UNC	
22	1.313-18UNEF	39,88	33,35	13,72	7,75	9,52	27,94	23,83	43,66	31,75	8-32UNC	
24	1.438-18UNEF	42,93	36,53	13,72	7,75	9,52	29,59	31,75	52,38	57,15	8-32UNC	
28	1.750-18UNS	50,80	44,45	17,83	7,75	9,52	29,59	34,93	58,72	57,15	8-32UNC	

a *E* dimension is taken when the coupling nut is pulled in forward position.

b An allowance must be made for the thickness of the screen used.

c To be confirmed by manufacturers.

4.2 Interface dimensions

4.2.1 Associated connection

See EN 3660-002.

4.2.2 Modified AS85049 interface

See Figure 2, Figure 3 and Table 2.

All dimensions in millimetres.

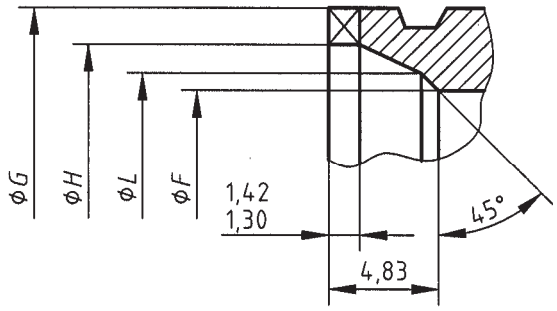
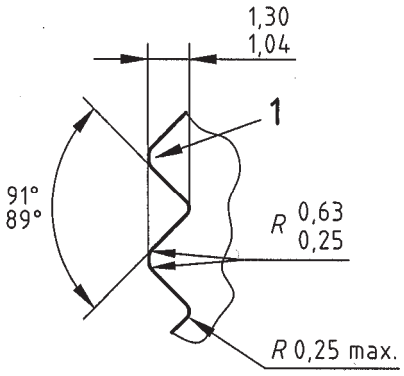


Figure 2 — Detail X



Key

1 Number of teeth (see Table 2).

Figure 3 — Detail Y

Table 2

Dimensions in millimetres

Shell size	Ø *F* 0 −0,25	Ø *G* **Ref.**	Ø *H* +0,13 0	Ø *L* +0,18 0	*N* **Number of teeth**
08	6,86	11,10	9,17	6,68	12
10	9,53	14,53	11,10	9,35	15
12	12,80	17,45	14,83	12,62	21
14	14,86	20,62	17,22	15,98	24
16	17,93	23,80	20,55	17,73	30
18	20,02	25,20	22,48	21,46	33
20	23,22	28,37	25,53	25,02	36
22	26,39	31,55	29,01	27,61	39
24	29,31	34,72	32,46	31,62	42
28	35,28	42,75	38,91	37,97	54

4.3 Material and finish

Material/Finish	Class N	:	Aluminium/Electroless nickel
Material/Finish	Class W	:	Aluminium/Olive drab cadmium plate
Material/Finish	Class K	:	Stainless steel/Passivated

4.4 Assembly torque

These torque values are intended for installation use only, see Table 3.

Table 3

Shell size	Torque Nm ± 0,5
08	4,5
10	4,5
12	4,5
14	4,5
16	4,5
18	4,5
20	9,0
22	9,0
24	9,0
28	10,0

4.5 Coupling thread strength torques

These torque values are for test purposes, see EN 2591-420 and Tables 4 and 5.

Table 4

Shell size	Torque Nm ± 0,5
08	5,5
10	5,5
12	5,5
14	5,5
16	5,5
18	5,5
20	11,0
22	11,0
24	11,0
28	12,0

4.6 Tests

Test details to be in accordance with Table 5, EN 3660-001 and EN 2591-100.

Qualification to be in accordance with EN 3660-001.

Table 5

<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>101</td><td>Visual inspection</td><td></td><td>X</td><td>—</td></tr>
<tr><td>102</td><td>Examination of dimensions and mass</td><td></td><td>X</td><td>See 4.1.</td></tr>
<tr><td>205</td><td>Housing (shell) electrical continuity</td><td></td><td>X</td><td>Max. resistance 5 mΩ</td></tr>
<tr><td>212</td><td>Surface transfer impedance (from 100 MHz to 1 GHz) [a]</td><td></td><td>X</td><td><table><tr><th>Frequency
MHz</th><th>Minimum attenuation
dB</th></tr><tr><td>100
200
300
400
800
1 000</td><td>80
75
73
71
66
65</td></tr></table>Method 2</td></tr>
<tr><td>301</td><td>Endurance at temperature</td><td></td><td>X</td><td>Class N and W only
Class K [b]</td></tr>
<tr><td>305</td><td>Rapid change of temperature</td><td>X</td><td></td><td></td></tr>
<tr><td>306</td><td>Mould growth</td><td></td><td>X</td><td>See EN 3660-001.</td></tr>
<tr><td>307</td><td>Salt mist</td><td></td><td>X</td><td>Cable outlet not fitted to a connector and suspended with non-metallic cord.
Duration:
Class N and K 48 h
Class W 500 h</td></tr>
<tr><td>308</td><td>Sand and dust</td><td></td><td>X</td><td>Air speed 3,5 m/s
No. of cycles: 1</td></tr>
<tr><td>314</td><td>Immersion at low air pressure</td><td>X</td><td></td><td>—</td></tr>
<tr><td>315</td><td>Fluid resistance</td><td></td><td>X</td><td>—</td></tr>
<tr><td>316</td><td>Ozone resistance</td><td>X</td><td></td><td>—</td></tr>
<tr><td>317</td><td>Flammability</td><td>X</td><td></td><td>—</td></tr>
<tr><td>318</td><td>Fire-resistance</td><td></td><td>X</td><td>Class K only</td></tr>
</table>

continued

Table 5 *(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>402</td><td>Shock</td><td></td><td>X</td><td>Method A.
Severity: 100 g
No. of shocks:
One in each direction in two perpendicular axes, i.e. four shocks</td></tr>
<tr><td>403</td><td>Sinusoidal and random vibration</td><td></td><td>X</td><td>Method B. Figure 3. Level J
Duration:
8 h in each of two axes
Test performed:
on one group
– 50 % of time at – 65 °C;
– 50 % of time at ambient temperature;
on a 2nd group
– 100 % of time at max. temperature of class under test</td></tr>
<tr><td>406</td><td>Mechanical endurance</td><td></td><td>X</td><td>60 cycles total</td></tr>
<tr><td>408</td><td>Mating and unmating forces</td><td></td><td>X</td><td>Method A.
Use dummy receptacle.
See Table 6.</td></tr>
<tr><td>420</td><td>Mechanical strength of rear accessories</td><td></td><td>X</td><td>Phase A
<table>
<tr><th>Shell size</th><th>Bending moment
Nm</th></tr>
<tr><td>08</td><td>6,0</td></tr>
<tr><td>10</td><td>10,0</td></tr>
<tr><td>12</td><td>20,5</td></tr>
<tr><td>14</td><td>22,5</td></tr>
<tr><td>16</td><td>28,0</td></tr>
<tr><td>18</td><td>31,5</td></tr>
<tr><td>20</td><td>34,0</td></tr>
<tr><td>22</td><td>39,5</td></tr>
<tr><td>24</td><td>43,0</td></tr>
<tr><td>28</td><td>47,5</td></tr>
</table>
See Tables 4 and 6.</td></tr>
<tr><td>422</td><td>Locking wire hole strength</td><td></td><td>X</td><td>Where applicable</td></tr>
<tr><td>513</td><td>Magnetic permeability</td><td></td><td>X</td><td>Not fitted to a connector.
Max. values:
Class N and W 2,0
Class K 5,0</td></tr>
</table>

[a] 1 GHz to 10 GHz under consideration.

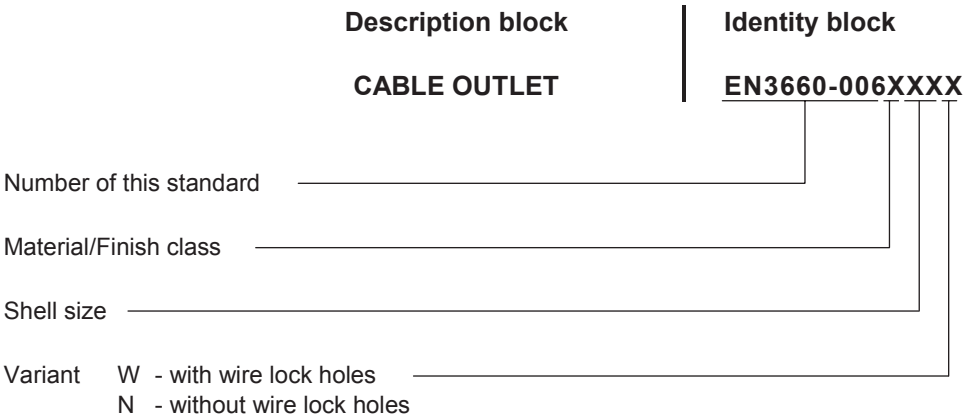
[b] Class K to be subjected to Test EN 2591-301, only where non-metallic components are used.

Table 6

Shell size	Rotation torque coupling direction Nm	Rotation torque uncoupling direction Nm	
	max.	max.	min.
08	0,12	0,25	0,10
10	0,18	0,40	0,15
12	0,25	0,60	0,20
14	0,38	0,85	0,25
16	0,46	1,05	0,30
18	0,56	1,25	0,35
20	0,65	1,50	0,40
22	0,73	1,65	0,45
24	0,82	1,85	0,50
28	1,06	2,40	0,60

5 Designation

EXAMPLE 1



EXAMPLE 2

EN3660-006N08W Cable outlet style C, straight, shielded (cone grounding), aluminium, electroless nickel, shell size 08, with wire lock holes.

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

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

6 Marking

Refer to EN 3660-001 and Figure 1.

7 Technical specification

Refer to EN 3660-001.

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