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**Aeronavtika - Dodatki za okrogle in pravokotne elektril'ne in optil'ne konektorje - 019. del: Kabelska spojka, tip A, 45°, netesnjena, z drhalom za spojko - Standard za proizvod**

Aerospace series - Cable outlet accessories for circular and rectangular electrical and optical connectors - Part 019: Cable outlet, style A, 45°, unsealed, with cable tie strain relief - Product standard

Luft- und Raumfahrt - Endgehäuse für elektrische und optische Rund- und Rechtecksteckverbinder - Teil 019: Endgehäuse, Bauform A, 45°, nicht abgedichtet, mit Arm für Kabelbinder - Produktnorm

Série aérospatiale - Accessoires arrière pour connecteurs circulaires et rectangulaires électriques et optiques - Partie 019 : Raccord coudé, 45°, non étanche, type A, avec tenue du câble par frettage - Norme de produit

**Ta slovenski standard je istoveten z: EN 3660-019:2009**

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**ICS:**

49.060

Letalska in vesoljska  
elektril'na oprema in sistemi

Aerospace electric  
equipment and systems

**SIST EN 3660-019:2009**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 3660-019**

February 2009

ICS 49.060

English Version

**Aerospace series - Cable outlet accessories for circular and rectangular electrical and optical connectors - Part 019: Cable outlet, style A, 45°, unsealed, with cable tie strain relief - Product standard**

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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.

[SIST EN 3660-019:2009](https://standards.iteh.ai/catalog/standards/sist/8dfe4b6-b15b-412e-98b0-3400920091/EN-3660-019-2009)

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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## Foreword

This document (EN 3660-019:2009) 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 August 2009, and conflicting national standards shall be withdrawn at the latest by August 2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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 3660-019:2009 (E)****1 Scope**

This product standard defines a range of cable outlets, style A, 45°, straight, unsealed, with clamp strain relief.

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

**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 — 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*

**3 Terms and definitions**

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

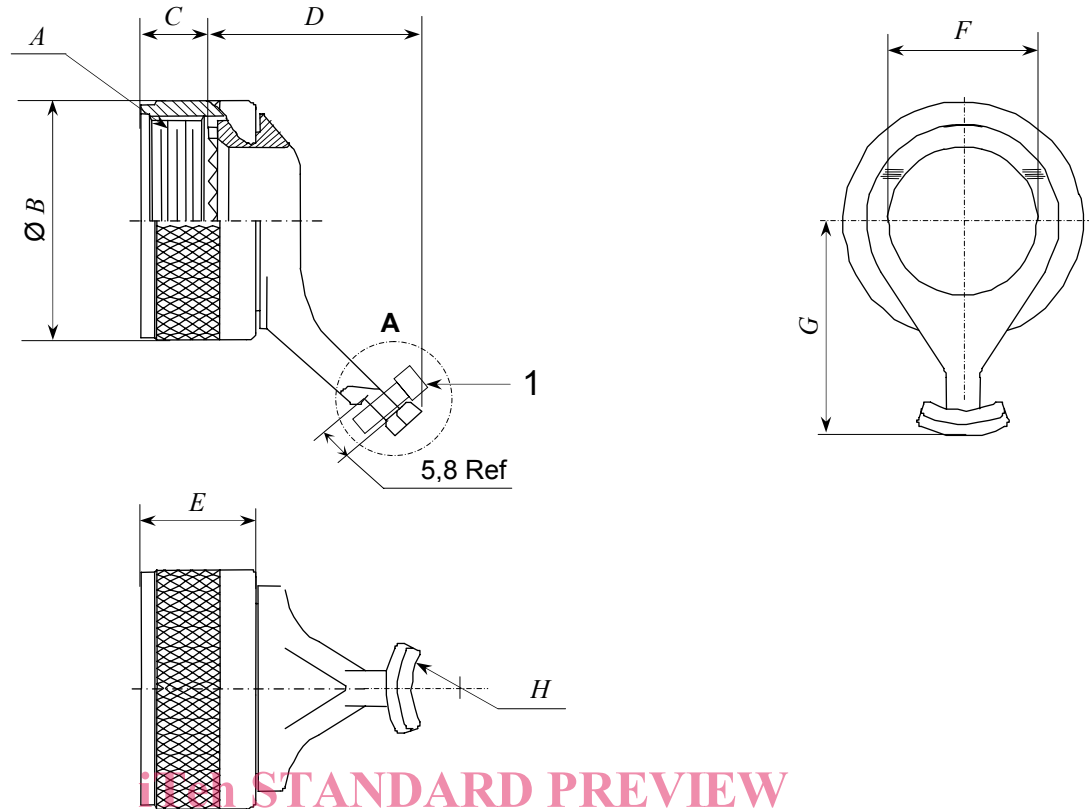
**4 Characteristics****4.1 Dimensions and masses**

For dimensions and masses, see Figure 1 and Table 1.

Dimensions and tolerances are in millimetres.

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\* All parts quoted in Table 4.

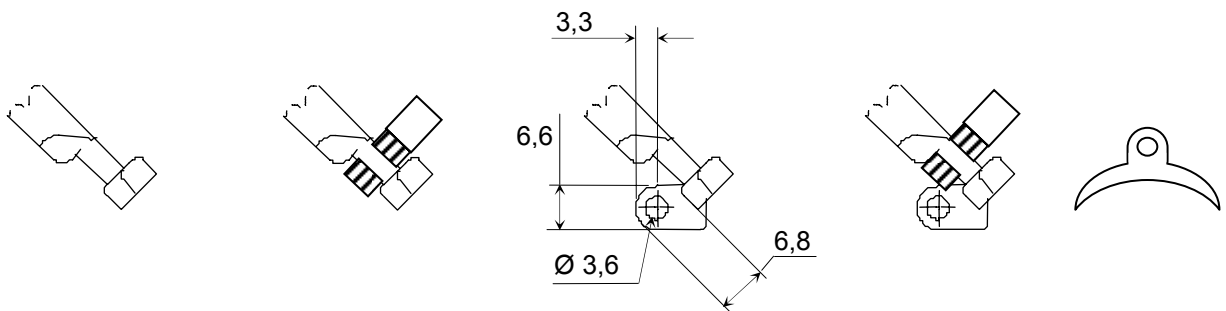
**Key**

- 1 Cable tie or lace cord

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**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  
alone

Table 1

| Shell size | A<br>Thread | $\varnothing B$      |                   | $C^a$ | D    | E     | F     | G     | H<br>Radius | Number of teeth | Without                                | With |
|------------|-------------|----------------------|-------------------|-------|------|-------|-------|-------|-------------|-----------------|----------------------------------------|------|
|            |             | Without self-locking | With self-locking |       |      |       |       |       |             |                 | Masses max.<br>Classes A, N and W<br>g | g    |
| 09         | M12x1-6H    | 19,60                | 24,80             | 6,29  | 27,1 | 12,50 | 7,59  | 18,00 | 2,11        | 12              | 5,5                                    | 6,5  |
| 11         | M15x1-6H    | 20,80                | 26,90             | 6,29  | 27,1 | 12,50 | 10,85 | 19,00 | 2,87        | 16              | 6,0                                    | 7,5  |
| 13         | M18x1-6H    | 23,90                | 29,70             | 6,29  | 27,1 | 12,50 | 13,74 | 21,50 | 3,81        | 20              | 7,5                                    | 9,0  |
| 15         | M21x1-6H    | 27,20                | 32,70             | 6,29  | 30,2 | 12,50 | 16,92 | 26,00 | 4,77        | 24              | 11,0                                   | 13,0 |
| 17         | M25x1-6H    | 30,70                | 36,10             | 6,29  | 31,1 | 12,50 | 20,09 | 27,00 | 5,66        | 28              | 12,5                                   | 14,5 |
| 19         | M28x1-6H    | 34,50                | 39,10             | 6,29  | 31,1 | 12,50 | 22,18 | 28,50 | 7,13        | 32              | 13,5                                   | 16,0 |
| 21         | M31x1-6H    | 37,60                | 42,40             | 6,29  | 31,1 | 12,50 | 25,96 | 32,00 | 7,13        | 36              | 15,0                                   | 18,5 |
| 23         | M34x1-6H    | 40,60                | 51,10             | 6,29  | 31,1 | 12,50 | 29,13 | 34,50 | 7,82        | 40              | 17,5                                   | 20,5 |
| 25         | M37x1-6H    | 43,20                | 53,80             | 6,29  | 31,1 | 12,50 | 32,31 | 36,50 | 8,89        | 44              | 20,5                                   | 25,0 |

<sup>a</sup> "C" dimensions are taken when the coupling nut is pulled in forward position.

## 4.2 Interface dimensions

See Figure 3 and Table 2.

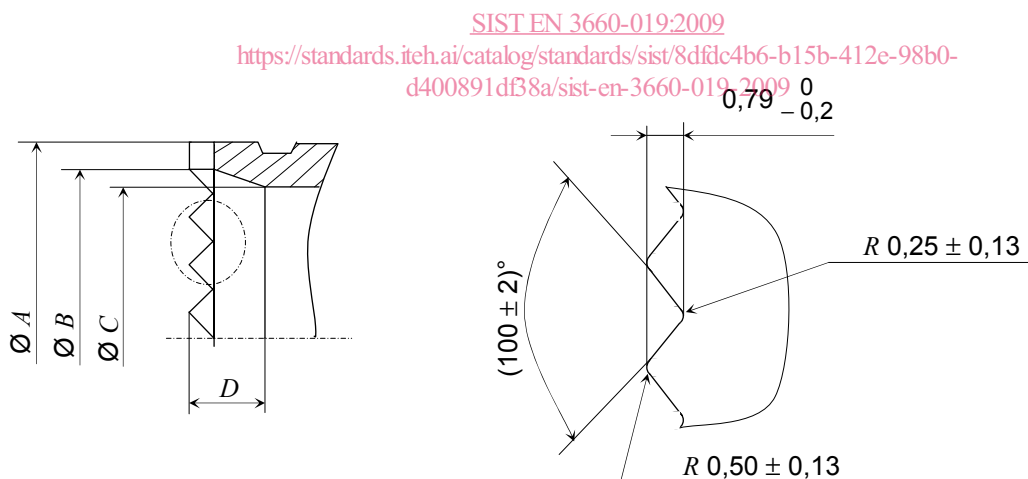


Figure 3

Table 2

| Shell size | $\varnothing A$<br>0<br>– 0,15<br>mm | $\varnothing B$<br>max.<br>mm | $\varnothing C$<br>min.<br>mm | $D$<br>min.<br>mm | $N$<br>Number<br>of teeth |
|------------|--------------------------------------|-------------------------------|-------------------------------|-------------------|---------------------------|
| 09         | 10,57                                | 7,50                          | 6,70                          | 2,90              | 12                        |
| 11         | 13,56                                | 10,80                         | 9,90                          | 2,90              | 16                        |
| 13         | 16,58                                | 13,80                         | 12,80                         | 2,90              | 20                        |
| 15         | 20,57                                | 16,90                         | 16,00                         | 2,90              | 24                        |
| 17         | 23,57                                | 20,10                         | 19,20                         | 2,90              | 28                        |
| 19         | 25,57                                | 22,80                         | 21,40                         | 2,90              | 32                        |
| 21         | 29,97                                | 26,00                         | 24,60                         | 2,90              | 36                        |
| 23         | 32,56                                | 29,10                         | 27,70                         | 2,90              | 40                        |
| 25         | 35,56                                | 32,30                         | 30,90                         | 1,70              | 44                        |

#### 4.3 Material and finish

Backshell: Class A : Aluminium/black anodised

Class N : Aluminium/electroless nickel plated

Class W : Aluminium/olive drab cadmium plated

Spacer pad: silicone

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#### 4.4 Assembly torque

These torque values are intended for installation use only.

See Table 3.

Table 3

| Shell size | Torque<br>Nm<br>$\pm 0,5$ |
|------------|---------------------------|
| 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                     |