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**Aeronavtika - Električni kabli za digitalni prenos podatkov - 011. del: Enojni oplet - Štirižilni zvezdasti kabel, 100 ohm - Lahki - Tip KL - Standard za proizvod**

Aerospace series - Cable, electrical for digital data transmission - Part 011: Single braid - Star Quad 100 ohms - Lightweight - Type KL - Product standard

Luft- und Raumfahrt - Elektrische Leitungen für Digitaldatenübertragungen - Teil 011: Einfach geschirmt - Sternvierer 100 Ohm - Leichtbauweise - Typ KL - Produktnorm

Série aérospatiale - Câbles électriques pour transmission de données numériques - Partie 011 : Simple tresse - Quarte en étoile 100 ohms - Allégée - Type KL - Norme de produit

**Ta slovenski standard je istoveten z: prEN 3375-011**

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**ICS:**

|           |  |  |
|-----------|--|--|
| 29.060.20 | Kabli  | Cables                                   |
| 49.060    | Letalska in vesoljska električna oprema in sistemi | Aerospace electric equipment and systems |

**oSIST prEN 3375-011:2023**

**en,fr,de**



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 3375-11**

June 2023

ICS 49.060; 49.090

Will supersede EN 3375-011:2022

English Version

**Aerospace series - Cable, electrical for digital data  
transmission - Part 011: Single braid - Star Quad 100 ohms  
- Lightweight - Type KL - Product standard**

Série aérospatiale - Câbles électriques pour  
transmission de données numériques - Partie 011 :  
Simple tresse - Quarte en étoile 100 ohms - Allégée -  
Type KL - Norme de produit

Luft- und Raumfahrt - Elektrische Leitungen für  
Digitaldatenübertragungen - Teil 011: Einfach  
geschirmt - Sternvierer 100 Ohm - Leichtbauweise -  
Typ KL - Produktnorm

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ASD-STAN.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## European foreword

This document (prEN 3375-011:2023) 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 document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, prior to its presentation to CEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 3375-011:2022.

The main changes with respect to the previous edition are as follows:

- prEN 3774-001 (P4), XX/202X — Editorial improvements and update of Table 3 to make “Filler” optional.

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[oSIST prEN 3375-011:2023](https://standards.iteh.ai/catalog/standards/sist/dd717b46-f55e-45f2-b143-d63376d9d9e8/osist-pren-3375-011-2023)

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**prEN 3375-011:2023 (E)****1 Scope**

This document specifies the dimensions, tolerances, required characteristics and the mass of an AWG 24 shielded quad cable, type KL, intended for high speed (100 Mbit/s) full duplex Ethernet networks.

Linked to this particular application, the operating temperatures of the cable are between  $-65\text{ }^{\circ}\text{C}$  and  $125\text{ }^{\circ}\text{C}$ .

This cable is laser markable, this marking satisfies the requirements of EN 3838.

The characteristics impedance is  $100\ \Omega \pm 15\ \Omega$ .

**2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 3375-001, *Aerospace series — Cable, electrical, for digital data transmission — Part 001: Technical specification*

EN 3375-002, *Aerospace series — Cable, electrical, for digital data transmission — Part 002: General*

EN 3475-\*, *Aerospace series — Cables, electrical, aircraft use — Test methods*

TR 6058,<sup>1</sup> *Aerospace series — Cable code identification list*

**3 Terms and definitions**

For the purposes of this document the terms and definitions given in EN 3475-100 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

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\* All parts quoted in this document.

<sup>1</sup> Published as ASD-STAN Technical Report at the date of publication of this document by AeroSpace and Defence industries Association of Europe — Standardization (ASD-STAN), <https://www.asd-stan.org/>.

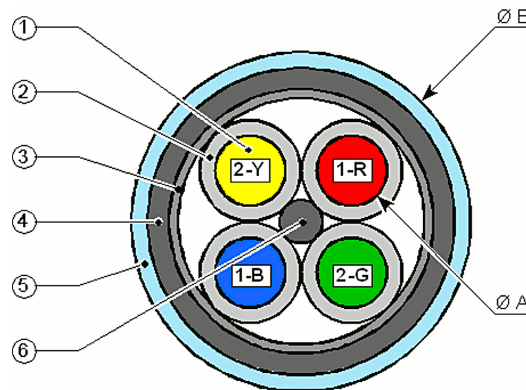
## 4 Required characteristics

### 4.1 Configuration, dimensions, tolerances and mass

The configuration, dimensions and tolerances shall be in accordance with Figure 1 and Table 1.

Mass:  $\leq 32,4$  g/m.

Dimensions are in millimetres



NOTE No. of elements in accordance with Table 2.

**Figure 1 — Configuration, dimensions and tolerances**

**Table 1 — Dimensions, tolerances and general characteristics**

|   |   |
|---|---|
| Stranded conductor ( $\varnothing A$ )                  | $0,598 \text{ mm} \leq \varnothing \leq 0,656 \text{ mm}^a$ |
| Insulation diameter (single wire)                       | $\varnothing \leq 1,52 \text{ mm}^a$                        |
| Braid, shield   | Strand diameter: $\geq 0,08 \text{ mm}$                     |
| Outer diameter of cable ( $\varnothing B$ )             | $4,10 \text{ mm} < \varnothing < 4,50 \text{ mm}$           |
| Colour of the jacket (5)                                | Light blue  |
| Colour of components (1)                                | Pair 1: Red (+), Blue (-)<br>Pair 2: Yellow (+), Green (-)  |
| Minimum bending radius for dynamic installation         | $10 \times \text{Max. outer diameter}$                      |
| Minimum bending radius in static                        | $5 \times \text{Max. outer diameter}$                       |
| <sup>a</sup> Adapted tools are requested for stripping. |   |

### 4.2 Material

The material and surface treatment shall be in accordance with Table 2.

Table 2 — Material

| No. of element | Element                    | Material                  |
|----------------|----------------------------|---------------------------|
| ①              | Stranded conductor         | Silver plated copper      |
| ②              | Insulation                 | Fluoropolymer             |
| ③              | Protection tape (optional) | Synthetic and/or metallic |
| ④              | Braid                      | Silver plated copper      |
| ⑤              | Jacket                     | Fluoropolymer             |
| ⑥              | Filler (optional)          | Fluoropolymer             |

### 4.3 General characteristics

General characteristics shall be in accordance with Table 1.

## 5 Tests

Tests shall be in accordance with Table 3.

Maximum attenuation of the cable at 25 °C shall be in accordance with Table 4.

Minimum near end cross talk of the cable and contacts shall be in accordance with Table 5.

Transfer impedance shall be in accordance with Table 4.

Table 3 — Tests as per EN 3475 (1 of 5)

| EN 3475- | Designation of the test          | Carried out on/Requirement              |   |
|----------|----------------------------------|---|---|
|          |                                  | Component (samples from finished cable) | Cable   |
| 100      | General                          | Not applicable                          | Applicable  |
| 201      | Visual examination               | Applicable                              | Applicable  |
| 202      | Mass                             | Not applicable                          | Applicable, see 4.1.  |
| 203      | Dimensions                       | Applicable                              | Applicable, see Table 1.  |
| 301      | Ohmic resistance per unit length | Not applicable                          | Applicable<br>Conductor: maximum electrical loop resistance 192 Ω/km<br>Screen: maximum electrical resistance 20 mΩ/m                 |
| 302      | Voltage proof test               | Not applicable                          | Applicable<br>Conductor/Conductor<br>Conductors/Shield<br>DC: 1 kV (1 min)<br>or 2,5 kV (2 s)<br>AC: 700 V (1 min)<br>or 1,7 kV (2 s) |



Table 3 — Tests as per EN 3475 (2 of 5)

| EN 3475- | Designation of the test        | Carried out on/Requirement   |  |
|----------|--------------------------------|--|--|
|          |                                | Component (samples from finished cable)  | Cable  |
| 303      | Insulation resistance          | Not applicable   | Applicable<br>≥ 1 500 MΩ.km at 20 °C   |
| 304      | Surface resistance             | Applicable<br>1 250 MΩ.mm  | Applicable<br>1 250 MΩ.mm  |
| 305      | Overload resistance            | Not applicable   | Not applicable   |
| 306      | Continuity of conductors       | Applicable   | Applicable   |
| 307      | Corona extinction voltage      | Not applicable   | Not applicable   |
| 401      | Accelerated ageing             | Not applicable   | Applicable<br>T = (155 ± 5) °C, 168 h<br>Mandrel Ø = 45 mm<br>Load = 0,7 daN   |
| 402      | Shrinkage and delamination     | Applicable<br>T = (125 ± 5) °C<br>Shrinking of the insulation = 0,8 mm max.  | Applicable<br>T = (125 ± 5) °C<br>Shrinking of the jacket = 5 mm max.  |
| 403      | Delamination and blocking      | Applicable<br>T = (125 ± 5) °C<br>Mandrel Ø = 20 mm  | Applicable<br>T = (125 ± 5) °C<br>Mandrel Ø = 45 mm  |
| 404      | Thermal shock                  | Applicable<br>30 min at (125 ± 5) °C<br>30 min at (-65 ± 3) °C<br>30 min at (20 ± 3) °C<br>Shrinking of the insulation = 0,8 mm max. | Applicable<br>30 min at (125 ± 5) °C<br>30 min at (-65 ± 3) °C<br>30 min at (20 ± 3) °C<br>Shrinking of the jacket = 5 mm max. |
| 405      | Bending at ambient temperature | Not applicable   | Applicable<br>Mandrel Ø = 45 mm<br>Load = 0,7 daN  |
| 406      | Cold bend test                 | Not applicable   | Applicable<br>T = (-65 ± 3) °C<br>Mandrel Ø = 45 mm<br>Load = 0,7 daN  |
| 407      | Flammability                   | Not applicable   | Applicable<br>Load = 1 daN   |

Table 3 — Tests as per EN 3475 (3 of 5)

| EN 3475- | Designation of the test                             | Carried out on/Requirement                            |  |
|----------|---|---|--|
|          |   | Component (samples from finished cable)               | Cable  |
| 408      | Fire resistance                                     | Not applicable  | Not applicable   |
| 409      | Air-excluded ageing                                 | Not applicable  | Not applicable   |
| 410      | Thermal endurance                                   | Not applicable  | Not applicable   |
| 411      | Resistance to fluids                                | Not applicable  | Applicable   |
| 412      | Humidity resistance                                 | Not applicable  | Not applicable   |
| 413      | Wrap back test                                      | Not applicable  | Not applicable   |
| 414      | Differential scanning calorimeter (DSC test)        | Not applicable  | Not applicable   |
| 415      | Rapid change of temperature                         | Not applicable  | Not applicable   |
| 416      | Thermal stability                                   | Not applicable  | Not applicable   |
| 417      | Fire resistance of cables confined inside a harness | Not applicable  | Not applicable   |
| 418      | Thermal endurance for conductors                    | Not applicable  | Not applicable   |
| 501      | Dynamic cut-through                                 | Not applicable  | Applicable<br>At (20 ± 5) °C: > 1 daN<br>At operating temperature: ≥ 0,5 daN |
| 502      | Notch propagation                                   | Not applicable  | Applicable<br>Notch depth = 0,05 mm<br>Mandrel Ø = 45 mm                     |
| 503      | Scrape abrasion                                     | Not applicable  | Applicable at (20 ± 5) °C<br>F = 1 daN                                       |
| 504      | Torsion   | Not applicable  | Not applicable   |
| 505      | Tensile test on conductors and strands              | Applicable<br>Tensile strength ≥ 45 N<br>and A % ≥ 10 | On whole braid:<br>Tensile strength ≥ 14 daN                                 |
| 506      | Plating continuity                                  | Applicable  | Applicable   |
| 507      | Adherence of plating                                | Applicable  | Applicable   |
| 508      | Plating thickness                                   | Applicable <sup>a</sup>                               | Applicable <sup>a</sup>  |
| 509      | Solderability                                       | Not applicable  | Not applicable   |