SLOVENSKI STANDARD
oSIST prEN 3375-001:2020

01-september-2020

Aeronavtika - Električni kabli za digitalni prenos podatkov - 001. del: Tehnična specifikacija

Aerospace series - Cable, electrical, for digital data transmission - Part 001: Technical specification

Luft- und Raumfahrt - Elektrische Leitungen für Digitaldatenübertragungen - Teil 001: Technische Lieferbedingungen

Série aérospatiale - Câbles électriques pour transmission de données numériques - Partie 001: Spécification technique

Ta slovenski standard je istoveten z: **prEN 3375-001**

ICS:

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

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EUROPEAN STANDARD

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ICS

Will supersede EN 3375-001:2018

English Version

Aerospace series - Cable, electrical, for digital data transmission - Part 001: Technical specification

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Luft- und Raumfahrt - Elektrische Leitungen für Digitaldatenübertragungen - Teil 001: Technische Lieferbedingungen

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

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European foreword

This document (prEN 3375-001:2020) 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-STAN, prior to its presentation to CEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 3375-001:2018.

1 Scope

This document specifies the required characteristics, test methods, qualification and acceptance conditions of signal data transmission electrical cables.

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 2083, *Aerospace series - Copper and copper alloys conductors for electrical cables - Product standard*

EN 2084, *Aerospace series - Cables, electrical, general purpose, with conductors in copper or copper alloy - Technical specification*

EN 2235, *Aerospace series - Single and multicore electrical cables, screened and jacketed - Technical specification*

EN 3475,[1)], Aerospace series — Cables, electrical, aircraft use — Test methods

EN 3838, *Aerospace series - Requirements and tests on user-applied markings on aircraft electrical cables*[2)]

EN 4434, *Aerospace series - Copper or copper alloy lightweight conductors for electrical cables - Product standard (Normal and tight tolerances)*

ISO 2574, *Aircraft — Electrical cables — Identification marking*

ISO 8815, *Aircraft — Electrical cables and cable harnesses — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8815 and EN 3475-100 apply.

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

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

1) All parts quoted in this document.

2) Published as ASD-STAN Standard at the date of publication of this document by AeroSpace and Defence industries Association of Europe — Standardization (ASD-STAN), http://www.asd-stan.org/

4 Materials and construction of cables

4.1 General

The composition, dimensions and mass of the cable shall conform to the characteristics below, as well as the values specified in the product standards.

The individual cores shall conform to EN 2083 or EN 4434, EN 2084 and the product standards.

4.2 Materials

The materials shall conform to the product standard.

The surface of conductive materials used shall be free from corrosion and other contamination.

Insulation and other materials shall have no corrosive effect upon the conductors and screens and shall not be susceptible to attack by mould and other microorganisms.

4.3 Construction of cables

4.3.1 General

The permissible operating temperature of conductors shall not be lower than the maximum operating temperature of the cable as a whole.

4.3.2 Cabled cores

The lay length of the outer lay shall not be less than 8 (eight) times and not more than 16 times the nominal diameter of the cabled cores, except if a different value is necessary to maintain the required characteristics.

The core shall not be spliced.

Where filler cores are used, this shall be specified in the product standard.

The assembly may be held together with an overall wrap.

4.3.3 Screened cables

4.3.3.1 General

The construction shall conform to the product standard.

Depending on protection level, the screening may be composed of:

- 1 (one) or several spiral layers;
- 1 (one) or several braids made using strands or strips;
- 1 (one) or several metallic or other strips;
- 1 (one) or several layers of extruded conductive or non-conductive materials;
- a combination of the above.

The screening may be individual and/or overall.

The individual strands or strips used for the screen shall be free from kinks, loops or breaks. Except when particular materials are used, they shall conform to standard EN 2083 or EN 4434 or shall satisfy the mechanical tests in EN 3475-505 to EN 3475-508 before use.

Where spiral screening is used, the first lay direction shall be contrary to that of the cabled cores.

4.3.3.2 Joints

Splices of the individual strands or strips may be affected by brazing, soldering or folding in.

There shall be no more than 1 (one) splice per 3 m cable length (measured between different individual strands or strips).

4.3.3.3 Braid screen pushback capability

In accordance with Table 1, test 6.49.

4.3.3.4 Angle of spiral screening or braiding

The angle γ of spiral screening or braiding (as shown in Figure 1 of EN 2235), measured against the longitudinal axis of the cable shall be at least 10°, except if a different value is necessary to maintain the required characteristics.

4.3.3.5 Screen coverage

Coverage β, if specified, is determined in accordance with EN 2235.

4.3.4 Outer jacket

The construction shall conform to the product standard.

4.4 Colours of components and jacket

See product standard.

5 Required characteristics

The characteristics of the cables, tested according to the methods described hereafter, shall comply with the values given in the product standard.

6 Test methods

See Table 1.

Table 1 — Test: methods, application and requirements

No.	Tests							Requirements (and/or particulars)
	Description	EN 3475- (and/or particulars)	Qualification [a] (see 7.1)	First article inspection (see 7.1.4)	Each delivery		Periodic Every three years (see 7.2.4)	
					On all cables (see 7.2.1 and 7.2.2)	Prior to delivery (see 7.2.1 and 7.2.3)		
6	General	100	X	X	X	X	X	
6.1	Visual examination [b]	201	3	3	X			Cable construction as described in Clause 4. Marking: see Clause 8.
6.2	Mass	202	3	3		X		Product standard
6.3	Dimensions (all) [b]	203	3	3				Product standard
	— outer diameter					X		

No.	Tests							Requirements (and/or particulars)
	Description	EN 3475- (and/or particulars)	Qualification [a] (see 7.1)	First article inspection (see 7.1.4)	Each delivery		Periodic Every three years (see 7.2.4)	
					On all cables (see 7.2.1 and 7.2.2)	Prior to delivery (see 7.2.1 and 7.2.3)		
6.4	Ohmic resistance per unit length	301	3	3		X		EN 2083 or Product standard
6.5	Voltage proof test:	302						
	— immersion test		3	3				Product standard
	— dry test				X			
	— dry impulse test	Alternative to dry test			X			
	— dielectric strength of cores				X			
6.6	Insulation resistance	303	3	3				
	— dry test					X		
	— immersion test						X	Product standard
6.7	Surface resistance [b]	304	3				X	For component: 1 250 MΩ.mm
6.8	Overload resistance	305	Not applicable					
6.9	Continuity of conductors	306	1	1	X			
6.10	Corona extinction voltage	307	1	1			X	If applicable: see product standard.
6.11	Accelerated ageing	401 Mandrel diameter, test load and temperature: Product standard	3	3			X	
6.12	Shrinkage and delamination	402 Temperature: Product standard	3	3		X		Product standard

No.	Tests							Requirements (and/or particulars)
	Description	EN 3475- (and/or particulars)	Qualification [a] (see 7.1)	First article inspection (see 7.1.4)	Each delivery		Periodic Every three years (see 7.2.4)	
					On all cables (see 7.2.1 and 7.2.2)	Prior to delivery (see 7.2.1 and 7.2.3)		
6.13	Delamination and blocking	403 Mandrel diameter and temperature: Product standard	3	3		X		
6.14	Thermal shock	404 Product standard	3	3			X	Product standard
6.15	Bending at ambient temperature	405 Mandrel diameter and load: Product standard	3				X	
6.16	Cold bend test	406 Mandrel diameter and load: Product standard	3	3			X	
6.17	Flammability	407 Load: Product standard	3				X	
6.18	Fire resistance	408	Not applicable					
6.19	Air-excluded ageing	409	Not applicable					
6.20	Thermal endurance	410	Not applicable					
6.21	Resistance to fluids [c]	411	1 per fluid				X	c
6.22	Humidity resistance	412	Not applicable					
6.23	Wrap back test	413	Not applicable					
6.24	Differential scanning calorimeter (DSC test)	414	Not applicable					
6.25	Rapid change of temperature	415	3				X	If applicable: see Product standard.
6.26	Thermal stability	416	3				X	If applicable: see Product standard.
6.27	Fire resistance of cable inside shielded harness	417	Not applicable					
6.28	Thermal endurance for conductors	418	Not applicable					
6.29	Dynamic cut-through	501	3	3			X	Product standard