SLOVENSKI STANDARD
SIST EN 2084:2018

01-november-2018

Nadomešča:
SIST EN 2084:2015

Aeronavtika - Kabli, električni, za splošne namene, z vodniki iz bakra ali bakrene zlitine - Tehnična specifikacija

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

Luft- und Raumfahrt - Elektrische Leitungen, für allgemeine Verwendung, mit Leitern aus Kupfer oder Kupferlegierung - Technische Lieferbedingungen

Série aérospatiale - Câbles, électriques, d'usage général, avec conducteurs en cuivre ou en alliage de cuivre - Spécification technique

Ta slovenski standard je istoveten z: EN 2084:2018

ICS:

29.060.20	Kabli	Cables
49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems
77.150.30	Bakreni izdelki	Copper products

SIST EN 2084:2018 en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 2084

August 2018

ICS 49.060

Supersedes EN 2084:2015

English Version

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

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This European Standard was approved by CEN on 6 November 2017.

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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-CENELEC Management Centre has the same status as the official versions.

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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 (EN 2084:2018) 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of an identical text or by endorsement, at the latest by February 2019, and conflicting national standards shall be withdrawn at the latest by February 2019.

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

This document supersedes EN 2084:2015.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the characteristics, test methods, qualification and acceptance conditions of single and multicore electric cables, without jackets, for general purpose with conductors in copper or copper alloy, intended for installation in aircraft circuits.

The insulation of these cables is designed to withstand aircraft voltages at a frequency not exceeding 2 000 Hz. Unless specified by individual product standards the maximum demonstrated a.c. voltage of rating of these cables is 115 V rms (phase to neutral) and 200 V rms (phase to phase).

They are divided into types, the characteristics of which are given in the product standards. Unless otherwise specified in the product standard, the tests defined in this standard apply.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 or copper alloy conductors for electrical cables — Product standard*

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

EN 3475-100 (all parts), *Aerospace series — Cables, electrical, aircraft use — Test methods — Part 100: General*

EN 3838, *Aerospace series — Requirements and tests on user-applied markings on aircraft electrical cables*

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

EN 9102, *Aerospace series — Quality Systems — First Article Inspection Requirement*

EN 9133, *Aerospace series — Quality Management Systems — Qualification Procedure for Aerospace Standard Products*

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

3 Terms, definitions and symbols

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

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

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

4 Materials and construction of cables

4.1 Conductors

They shall be conform to EN 2083 and/or EN 4434, unless otherwise specified.

4.2 Finished cables

The insulation material shall present on uniform circular cross-section throughout the length of the cable.

Covering over the insulation shall be treated and applied in such a manner that the cables present a smooth appearance (unless the acceptable overlap due to a tape wrapped technology) and are able to accept marking.

Multiconductors assembly shall be cabled according EN 2235.

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 Tests methods

6.1 Single core cables

See Table 1.

Table 1 — Tests: methods, application, requirements – Single core cables

§ No.	Tests							Requirements (and/or particulars)
	Description	EN 3475- (and/or particulars)	Qualification a (see 7.1)	First article inspection (see 7.2.5)	Each delivery		Periodic every three years (7.2.4)	
					On all cables (7.2.1 and 7.2.2)	Prior to delivery (7.2.1 and 7.2.2)		
6.1.0	Test conditions	100	X	X	X	X	X	—
6.1.1	Visual examination	201	3	3	X			Marking: according to Clause 8
6.1.2	Mass	202	3	3		X		Minimum length: 0,5 m
6.1.3	Dimensions (all)	203	3	3		X		Conductor: EN 2083 and/or EN 4434, unless otherwise specified.
	— outer diameter				X			Product standard
6.1.4	Ohmic resistance per unit length	301	3	3		X		Product standard
6.1.5	Voltage proof test:	302						
	— immersion test;		3	3				2,5 KV rms
	— dry test;				X			5 KV rms
	— or dry impulse test.	Alternative to dry test			X			8 KV peak voltage
6.1.6	Insulation resistance	303	3	3				For a length of 1 km:
	— at (20 ± 2) °C;							1 500 MΩ minimum
	— at (95 ± 2) °C.						X	15 MΩ minimum
6.1.7	Surface resistance	304	3					Minimum: 1 250 mΩ × mm

§ No.	Tests							Requirements (and/or particulars)
	Description	EN 3475- (and/or particulars)	Qualification [a] (see 7.1).	First article inspection (see 7.2.5)	Each delivery		Periodic every three years (7.2.4)	
					On all cables (7.2.1 and 7.2.2)	Prior to delivery (7.2.1 and 7.2.2)		
6.1.8	Overload resistance	305 T_1 and T_2: product standard	3				X	Applicable to cable of 0,6 mm² only
6.1.9	Continuity of conductors	306	1	1	X			—
6.1.10	Corona extinction voltage	307	X	X			X	Applicable for cables rated above 200 V rms
6.1.11	Accelerated ageing	401 Mandrel diameter and test load: Table 4 Temperature: product standard	3	3			X	—
6.1.12	Shrinkage and delamination	402 Temperature: product standard	3	3		X		Product standard
6.1.13	Delamination and blocking	403 Mandrel diameter: Table 4 Temperature: product standard	3	3		X		—
6.1.14	Thermal shock	404 Temperature: product standard	3	3		X		Product standard
6.1.15	Bending at ambient temperature	405 Mandrel diameter: Table 4	3					—
6.1.16	Cold bend test	406 Mandrel diameter and test load: Table 4	3	3			X	—
6.1.17	Flammability	407	3				X	Product standard
6.1.18	Fire resistance	408						Not applicable
6.1.19	Air-excluded ageing	409 Temperature and time: product standard						Not applicable (unless specified in the product standard)
6.1.20	Thermal endurance	410	X					Product standard Applicable to cable of 0,6 mm² only
6.1.21	Resistance to fluids	411	1/fluid				X	Immersion test applicable to cable of 0,6 mm² only unless stated in the product standard

§ No.	Tests							Requirements (and/or particulars)
	Description	EN 3475- (and/or particulars)	Qualification [a] (see 7.1).	First article inspection (see 7.2.5)	Each delivery		Periodic every three years (7.2.4)	
					On all cables (7.2.1 and 7.2.2)	Prior to delivery (7.2.1 and 7.2.2)		
6.1.22	Humidity resistance	412 If method B: temperature and time: product standard	3				X	Method A or B as specified in product standard
6.1.23	Wrap back test	413	3	3			X	Applicable to cables ≤ 5 mm²
6.1.24	Differential scanning calorimeter (DSC test)	414	X	X			X	—
6.1.25	Rapid change of temperature	415						Not applicable
6.1.26	Thermal stability	416						Not applicable
6.1.27	Fire resistance of cables confined inside a harness	417						Not applicable
6.1.28	Thermal endurance for conductors	418						Not applicable
6.1.29	Dynamic cut-through	501 (for insulation wall thickness ≤ 0,38 mm)	3	3			X	Product standard (arithmetic mean value of eight tests per specimen)
6.1.30	Notch propagation	502 Cut depth: product standard	3	3			X	—
6.1.31	Scrape abrasion	503 Load: product standard	3	3			X	Product standard (requirements to be considered at 20 °C unless otherwise specified)
6.1.32	Torsion	504 Test load: Table 4 T_3 and T_4: product standard	3				X	Applicable to cables ≤ 5 mm²
6.1.33	Tensile test on conductors and strands	505	3	X		X		EN 2083 and/or EN 4434, unless otherwise specified Applicable on “raw material” and on finished cable
6.1.34	Plating continuity	506	3	X		X		Applicable on “raw material” and on finished cable
6.1.35	Adherence of plating	507	3	X		X		—
6.1.36	Plating thickness	508	3	X		X		EN 2083 and/or EN 4434, unless otherwise specified
6.1.37	Solderability	509	3	X		X		Product standard
6.1.38	Tensile strength and elongation of extruded insulation, sheath and jacket material	510	3	X		X	X	Product standard