SLOVENSKI STANDARD
SIST EN 2854-003:2021

01-september-2021

Nadomešča:
SIST EN 2854-003:2009

Aeronavtika - Električni kabli za splošno uporabo - Delovne temperature med -55 °C in 260 °C - 003. del: Standard za proizvod

Aerospace series - Cables, electrical for general purpose - Operating temperatures between -55 °C and 260 °C - Part 003: Product standard

Luft- und Raumfahrt - Elektrische Leitungen für allgemeine Verwendung - Betriebstemperaturen zwischen -55 °C und 260 °C - Teil 003: Produktnorm

Série aérospatiale - Câbles électriques d'usage général - Températures de fonctionnement comprises entre -55 °C et 260 °C - Partie 003 : Norme de produit

Ta slovenski standard je istoveten z: **EN 2854-003:2021**

ICS:

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

SIST EN 2854-003:2021 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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English Version

Aerospace series - Cables, electrical for general purpose - Operating temperatures between -55 °C and 260 °C - Part 003: Product standard

Série aérospatiale - Câbles électriques d'usage général - Températures de fonctionnement comprises entre -55 °C et 260 °C - Partie 003 : Norme de produit

Luft- und Raumfahrt - Elektrische Leitungen für allgemeine Verwendung - Betriebstemperaturen zwischen -55 °C und 260 °C - Teil 003: Produktnorm

This European Standard was approved by CEN on 17 February 2020.

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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 2854-003:2021) 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, prior to its presentation to CEN.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2021, and conflicting national standards shall be withdrawn at the latest by December 2021.

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 2854-003:2009.

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

1 Scope

This document specifies the characteristics of electrical cables for use in the on-board electrical systems of aircraft at operating temperatures between –55 °C and 260 °C for cross sections equal to and greater than 5 mm^2.

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 or copper alloy conductors for electrical cables — Product standard*

EN 2084, *Aerospace series — Cables, electric, 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* [1)]

EN 2854-002, *Aerospace series — Cables, electrical for general purpose — Operating temperatures between -55 °C and 260 °C — Part 002: General* [1)]

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

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

3 Terms and definitions

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

ISO and IEC maintain terminological 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/

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

* All parts quoted in this document.

4 Materials and construction

4.1 Materials

Conductor

See EN 2854-002.

Insulation

For all conductor size codes:

Taped layers of polyimide/PTFE/glass fibre impregnated with PTFE/PTFE.

4.2 Construction

See EN 2083 and EN 4434 for codes 051, 090 and 140 and Table 1.

Table 1

Code for nominal section	Nominal section mm²	AWG [a]	Linear resistance at 20 °C Ω/km max.	External diameter mm min.	External diameter mm max.	Mass kg/km max.
051	5	10	4,10	4,10	4,50	64,50
090	9	8	2,30	5,20	5,60	108
140	14	6	1,58	6,30	7,30	160
220	22	4	0,97	8,10	9,30	245
340	34	2	0,61	9,70	10,60	396
420	42	1	0,51	10,60	12,10	470
530	53	0	0,40	11,80	13,40	600
680	68	00	0,32	13,10	14,70	750
850	85	000	0,25	15,20	16,80	950
107	107	0000	0,20	16,70	18,40	1200

[a] AWG = closest American Wire Gauge.

4.3 Number of cores

See EN 2854-002.

See EN 2235 for cabling.

4.4 Colour coding of cores

See EN 2854-002.

5 Required characteristics

According to EN 2084 and EN 3475-100.

See Table 2.

Table 2 *(1 of 3)*

EN 3475-	Test	Details
201	Visual examination	Applicable
202	Mass	Applicable; see Table 1.
203	Dimensions	Applicable; see Table 1.
301	Ohmic resistance per unit length	Applicable; see Table 1.
302	Voltage proof test	Applicable
303	Insulation resistance	Applicable
304	Surface resistance	Applicable
305	Overload resistance	Not applicable
306	Continuity of conductors	Applicable
307	Corona extinction voltage	Not applicable
401	Accelerated ageing	Applicable Temperature (310 ± 5) °C
402	Shrinkage and delamination	Applicable Temperature (310 ± 5) °C Maximum shrinkage at each end of cable: — 5 mm² to 9 mm²: 1,5 mm — 14 mm² to 34 mm²: 2 mm — 42 mm² to 68 mm²: 2,5 mm — 85 mm² to 107 mm²: 3 mm
403	Delamination and blocking	Applicable Temperature (310 ± 5) °C
404	Thermal shock	Applicable Temperature (290 ± 5) °C Maximum shrinkage at each end of cable: — 5 mm² to 9 mm²: 1,5 mm — 14 mm² to 34 mm²: 2 mm — 42 mm² to 68 mm²: 2,5 mm — 85 mm² to 107 mm²: 3 mm
405	Bending at ambient temperature	Applicable
406	Cold bend test	Applicable
407	Flammability	Applicable Burning time: 3 s max.
408	Fire resistance	Not applicable
409	Air-excluded ageing	Not applicable
410	Thermal endurance	Not applicable

Table 2 *(2 of 3)*

EN 3475-	Test	Details
411	Resistance to fluids	Applicable
412	Humidity resistance	Not applicable
413	Wrap back test	Not applicable
414	Differential scanning calorimeter (DSC test)	Not applicable
415	Rapid change of temperature	Not applicable
416	Thermal stability	Not applicable
501	Dynamic cut-through	Not applicable
502	Notch propagation	Applicable Notch depth for nominal cross sections: — 5 mm² to 9 mm² and 14 mm² = 40 µm — ≥ 22 mm² = 50 µm
503	Scrape abrasion	Applicable Test force on needle = 15 N
504	Torsion	Not applicable
505	Tensile test on conductors and strands	Applicable
506	Plating continuity	Applicable
507	Adherence of plating	Applicable
508	Plating thickness	Applicable
509	Solder ability	Not applicable
510	Tensile strength and elongation of extruded insulation, sheath and jacket material	Not applicable
511	Cable-to-cable abrasion	Not applicable
512	Flexure endurance	Not applicable
513	Deformation resistance (Installation with plastic cable ties)	Not applicable
601	Smoke density	Applicable
602	Toxicity	Applicable
603	Resistance to wet arc tracking	Not applicable
604	Resistance to dry arc propagation	Not applicable
605	Wet short circuit test	Not applicable
701	Strip ability and adherence of insulation to the conductor	Applicable
702	Screen pushback capability	Not applicable

Table 2 *(3 of 3)*

EN 3475-	Test	Details
703	Permanence of manufacturer's marking	Applicable
704	Flexibility	Applicable — 5 mm²: 20 N; — 9 mm²: 25 N; — 14 mm²: 30 N; — 22 mm²: 35 N; — 34 mm²: 40 N; — 42 mm²: 50 N; — 53 mm²: 55 N; — 68 mm²: 60 N; — 85 mm²: 70 N; — 107 mm²: 75 N.
705	Contrast measurement	Not applicable
706	Laser mark ability	Not applicable

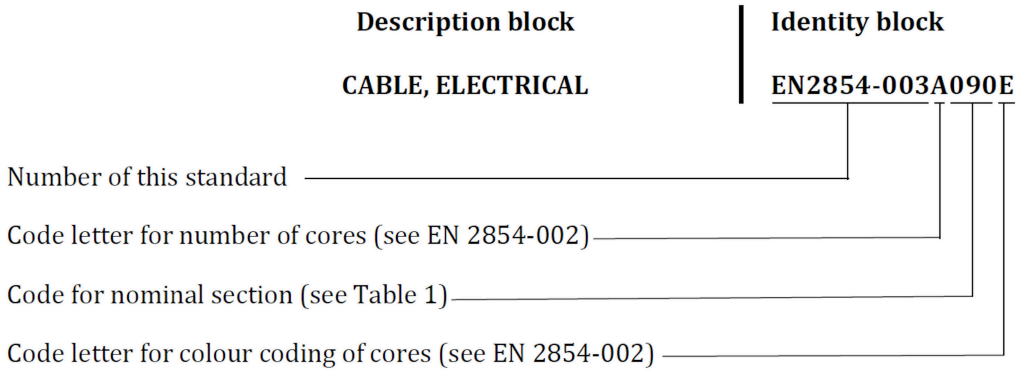
6 Quality assurance

See EN 9133.

7 Designation

7.1 Identification

EXAMPLE



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

7.2 Type code (for short designation)

Code designation in accordance with TR 6058, see Table 3.