SLOVENSKI STANDARD

SIST EN 2266-007:2006

01-julij-2006

Aeronavtika ï Elektriļ ni kabli za sploģne namene ï Delovne temperature med ï 55 Á C in 200 ÁC ï 007. del: Veļ ģilni oplaģļ eni kabli z moģnostjo UV-laserskega tiskanja ï Standard za proizvod

Aerospace series - Cables, electrical, for general purpose - Operating temperatures between - 55 °C and 200 °C - Part 007: UV laser printable multicore jacketed cable - Product standard

Luft- und Raumfahrt - Leitungen, elektrisch, für allgemeine Verwendung - Betriebstemperaturen zwischen - 55 °C und 200 °C - Teil 007: UV-Laser-bedruckbare, mehradrige ummantelte Leitungen - Produktnorm

Série aérospatiale - Câbles électriques d'usage général - Températures de fonctionnement comprises entre - 55 °C et 200 °C - Partie 007 : Multiconducteurs gainés marquables au laser UV - Norme de produit

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EUROPEAN STANDARD

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English Version

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This European Standard was approved by CEN on 30 September 2005.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This European Standard (EN 2266-007:2005) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-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 AECMA, 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 May 2006, and conflicting national standards shall be withdrawn at the latest by May 2006.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies the characteristics of UV laser printable multicore jacketed electrical cables for use in the on-board electrical systems of aircraft at operating temperatures between – 55 °C and 200 °C.

It shall also be possible to mark these cables by hot stamp printing or ink jet printing. These markings shall be in accordance with EN 3838.

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 2083, *Aerospace series – Copper or copper alloy conductors for electrical cables – Product standard.*

EN 2084, *Aerospace series – Cables, electric, single-core, general purpose, with conductors in copper or copper alloy – Technical specification.* 1)

EN 2235, *Aerospace series – Single and multicore electrical cables, screened and jacketed – Technical specification.* 1)

EN 2266-002, *Aerospace series – Cables, electrical, for general purpose – Operating temperatures between – 55 °C and 200 °C – Part 002: General.*

EN 2266-003, *Aerospace series – Cables, electrical, for general purpose – Operating temperatures between – 55 °C and 200 °C – Part 003: Ink jet printable – Product standard.*

EN 3475-100*, *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.* 1)

EN 9133, *Aerospace series – Quality management systems – Qualification Procedure for aerospace standard parts.*

3 Terms and definitions

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

4 Materials and construction

4.1 Materials

These cables shall consist of the following:

— cores according to EN 2266-003, top coat dispersion fluorocarbon;

— number of cores 2 to 4.

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* And all its parts quoted in Table 2.

1) Published as AECMA Prestandard at the date of publication of this standard.

2 to 4 core cables shall be twisted together according to EN 2235.

Filler cores shall not be permitted.

Outer jacket:

— layer of polyimide with total thickness (nominal value) of 37,5 µm, coated on one side with a layer 12,7 µm thick of fluorocarbon (FEP side of the tape against the cores);

— direction of winding opposite to direction of assembly - overlap min. 20 %;

— top coat of dispersion fluorocarbon, wall thickness min. 15 µm, including the necessary additives for the acceptance of user-applied UV laser marking.

4.2 Construction

See EN 2083 and Table 1.

Table 1

Number of cores	Code for nominal section	Nominal section mm^2	AWG [a]	Linear resistance at 20 °C Ω/km max.	External diameter mm max.	Mass kg/km max.
2	001	0,15	26	165,00	1,87	4,85
	002	0,25	24	117,00	2,07	6,40
	004	0,4	22	61,70	2,39	9,10
	006	0,6	20	34,10	2,91	14,90
	010	1	18	21,70	3,44	21,80
	012	1,2	16	14,90	3,96	30,30
	020	2	14	11,20	4,49	40,00
	030	3	12	6,99	5,34	62,90
3	001	0,15	26	165,00	1,99	7,10
	002	0,25	24	117,00	2,21	9,30
	004	0,4	22	61,70	2,55	13,35
	006	0,6	20	34,10	3,12	21,90
	010	1	18	21,70	3,68	32,20
	012	1,2	16	14,90	4,24	44,90
	020	2	14	11,20	4,90	59,40
	030	3	12	6,99	5,74	93,60
4	001	0,15	26	165,00	2,22	9,20
	002	0,25	24	117,00	2,47	12,15
	004	0,4	22	61,70	2,87	17,55
	006	0,6	20	34,10	3,50	28,90
	010	1	18	21,70	4,15	42,60
	012	1,2	16	14,90	4,75	59,50
	020	2	14	11,20	5,40	78,80

[a] AWG = Closest American Wire Gage.

4.3 Colours coding of cores

See EN 2266-002.

See EN 2235, clause 4.3.2 for cabling.

5 Required characteristics

According to EN 2084 and EN 3475-100.

See Table 2.

Table 2

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
401	Accelerated ageing	Applicable Temperature (250 ± 5) °C
402	Shrinkage and delamination	Applicable Temperature (250 ± 5) °C Maximum shrinkage at each end of cable: - for jacket: not applicable - for core insulation: see EN 2266-003.
403	Delamination and blocking	Applicable Temperature (250 ± 5) °C
404	Thermal shock	Applicable Temperature (250 ± 5) °C Maximum shrinkage at each end of cable: - for jacket: not applicable - for core insulation: see EN 2266-003.
405	Bending at ambient temperature	Applicable
406	Cold bend test	Applicable
407	Flammability	Applicable Extinguishing time : max. 3 s

continued

Table 2 *(concluded)*

EN 3475-	Test	Details
408	Fire resistance	Not applicable
409	Air-excluded ageing	Not applicable
410	Thermal endurance	Not applicable
411	Resistance to fluids	Applicable
412	Humidity resistance	Applicable
501	Dynamic cut-through	Not applicable
502	Notch propagation	Not applicable
503	Scrape abrasion	Not applicable
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	Solderability	Not applicable
511	Cable-to-cable abrasion	Not applicable
512	Flexure endurance	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	Strippability and adherence of insulation to the conductor	Applicable
702	Screen pushback capability	Not applicable
703	Permanence of manufacturer's marking	Applicable
704	Flexibility	Not applicable

6 Quality assurance

See EN 9133.