SLOVENSKI STANDARD
SIST EN 2714-004:2009

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Aeronavtika - Eno- ali veļ ġilni elektriļ ni kabli za sploġno uporabo - Delovne temperature med ï 55 ÁC in 260 ÁC - 004. del: Oklopljeni (opleteni) in oplaġļ eni, z moġnostjo brizganega tiskanja - Standard za proizvod

Aerospace series - Cables, electrical, single and multicore for general purpose - Operating temperatures between - 55 °C and 260 °C - Part 004: Screened (braided) and jacketed, ink jet printable - Product standard

Luft- und Raumfahrt - Leitungen, elektrisch, ein- und mehradrig, für allgemeine Verwendung - Betriebstemperaturen zwischen - 55 °C und 260 °C - Teil 004: Geschirmt (Umflechtung) und ummantelt, Tintenstrahl-bedruckbar - Produktnorm

Série aérospatiale - Câbles, électriques, mono et multiconducteurs d'usage général - Températures de fonctionnement comprises entre - 55 °C et 260 °C - Partie 004 : Blindés (tressés) et gainés, marquables au jet d'encre - Norme de produit

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English Version

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Foreword

This European Standard (EN 2714-004:2006) 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of an identical text or by endorsement, at the latest by February 2007, and conflicting national standards shall be withdrawn at the latest by February 2007.

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1 Scope

This standard specifies the characteristics of ink jet printable, single and multicore screened (braided) and jacketed electrical cables for use in the on-board electrical systems of aircraft, at operating temperatures between – 55 °C and 260 °C.

It shall also be possible to mark these cables by hot stamp printing.

These markings shall be in accordance with EN 3838.

This standard is not valid for new study.

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

EN 2267-003, *Aerospace series — Cables, electrical, for general purpose — Operating temperatures between – 55 °C and 260 °C — Part 003: Ink jet printable — Product standard.*

EN 2714-002, *Aerospace series — Cables, electrical, single and multicore for general purpose — Operating temperatures between – 55 °C and 260 °C — Part 002: Screened and jacketed — General.*

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.

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* And all parts quoted in Table 2.

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

4 Materials and construction

4.1 Materials

These cables shall consist of the following:

— cores according to EN 2267-003;

— number of cores 1 to 4.

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

Filler cores shall not be permitted.

Screen:

— nickel-plated copper stranded braid;

— for dimensions of strands, see Table 1;

— material according to EN 2083, tests according to EN 3475-100;

— construction according to EN 2235.

Outer jacket:

— layer of polyimide with total wall thickness (nominal value) of 30 µm, coated on both sides with a layer 2,5 µm thick of fluorocarbon;

— direction of winding immaterial - overlap 25 % min.;

— second layer of polytetrafluoroethylene 0,07 mm thick running in opposite direction to first layer with 51 % min. overlap;

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

4.2 Construction

See EN 2083 and Table 1.

Table 1

Number of cores	Code for nominal section	Nominal section mm²	AWG [a]	Linear resistance at 20 °C max. Ω/km	Screen strands nominal diameter mm	External diameter max. mm	Mass max. kg/km
1	001	0,15	26	160,0	0,10	1,74	8,1
	002	0,25	24	114,0	0,10	1,84	9,0
	004	0,4	22	60,0	0,10	1,99	11,0
	006	0,6	20	33,2	0,10	2,24	14,9
	010	1	18	21,1	0,10	2,54	19,8
	012	1,2	16	14,5	0,10	2,94	26,2
	020	2	14	10,9	0,10	3,20	32,7
	030	3	12	6,8	0,10	3,70	46,5
	050	5	10	4,2	0,12	4,44	70,0
	051 [b]	5	10	4,1	0,12	4,59	72,6
2	001	0,15	26	165,00	0,10	2,74	13,5
	002	0,25	24	117,00	0,10	2,99	16,0
	004	0,4	22	61,70	0,10	3,33	19,6
	006	0,6	20	34,10	0,10	3,81	27,7
	010	1	18	21,70	0,10	4,34	36,2
	012	1,2	16	14,90	0,12	5,20	52,3
	020	2	14	11,20	0,12	5,72	64,6
	030	3	12	6,99	0,12	6,84	96,0
	050	5	10	4,32	0,15	8,30	140,0
	051 [b]	5	10	4,22	0,15	8,50	145,0
3	001	0,15	26	165,00	0,10	2,90	17,1
	002	0,25	24	117,00	0,10	3,18	20,7
	004	0,4	22	61,70	0,10	3,52	26,0
	006	0,6	20	34,10	0,12	4,12	38,8
	010	1	18	21,70	0,12	4,69	52,1
	012	1,2	16	14,90	0,12	5,52	71,9
	020	2	14	11,20	0,12	6,21	90,0
	030	3	12	6,99	0,15	7,48	136,0
4	001	0,15	26	165,0	0,10	3,21	21,7
	002	0,25	24	117,0	0,10	3,46	26,3
	004	0,4	22	61,7	0,10	3,84	33,6
	006	0,6	20	34,1	0,12	4,50	50,0
	010	1	18	21,7	0,12	5,13	66,0
	012	1,2	16	14,9	0,15	6,19	97,2
	020	2	14	11,2	0,15	7,03	122,0

[a] AWG = Closest American Wire Gage.

[b] Flexible construction which may be used as an alternative.

4.3 Colour coding of cores and jacket

See EN 2714-002.

5 Required characteristics

According to EN 2235 and EN 3475-100.

See Table 2.

Table 2

EN 3475-	Designation of the 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 (310 ± 5) °C
402	Shrinkage and delamination	Applicable Temperature (290 ± 5) °C Maximum shrinkage at each end of cable: jacket 2 mm, core insulation, see EN 2267-003.
403	Delamination and blocking	Applicable Temperature (310 ± 5) °C
404	Thermal shock	Applicable Temperature (290 ± 5) °C Maximum shrinkage: – at each end of core: see EN 2267-003; – at each end of cable: jacket 2 mm
405	Bending at ambient temperature	Applicable
406	Cold bend test	Applicable
407	Flammability	Applicable Extinguishing time: 3 s max.
408	Fire resistance	Not applicable
409	Air-excluded ageing	Not applicable
410	Thermal endurance	Applicable 40 000 h (temperature 260 °C)
411	Resistance to fluids	Applicable
501	Dynamic cut-through	Not applicable
502	Notch propagation	Applicable Notch depth: 40 µm

continued