
5 YfcbUj H_UË9bc!U]j Y ý]b]YY_H] b]_UV]nUgd`cýbc`i dcfUWc`È8Ycj bY
HYa dYfUi fYa YX`È) `š7`jb`&`\$`š7`È`\$`%`%`XY.`8 fi ý]bU8 Ažc`_cd`Yb]`fgd]fUUL]b
cd`Uy`Yb]ž`n`a`cýbcgħc`I`J!`UgYfg`Y[`U]g`Ub`UË`GħUbXUFX`nUdfc]nj`cX

Aerospace series - Cables, electrical, single and multicore for general purpose -
Operating temperatures between - 55 °C and 260 °C - Part 011: DM family, screened
(spiral) and jacketed, UV laser printable - Product standard

Luft- und Raumfahrt - Leitungen, elektrisch, ein- und mehradrig, für allgemeine
Verwendung - Betriebstemperaturen zwischen - 55 °C und 260 °C - Teil 011: DM-
Familie, geschirmt (Umseilung) und ummantelt, UV Laser bedruckbar - Produktnorm

Série aérospatiale - Câbles électriques, mono et multiconducteurs d'usage général -
Températures de fonctionnement comprises entre - 55 °C et 260 °C - Partie 011 :
Famille DM, blindés (guipés) et gainés, marquable au laser UV - Norme de produit

Ta slovenski standard je istoveten z: EN 2714-011:2005

ICS:

49.060

SIST EN 2714-011:2006**en**

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ICS 49.060

English Version

Aerospace series - Cables, electrical, single and multicore for
general purpose - Operating temperatures between - 55 °C and
260 °C - Part 011: DM family, screened (spiral) and jacketed, UV
laser printable - Product standard

Série aérospatiale - Câbles, électriques, mono et
multiconducteurs d'usage général - Températures de
fonctionnement comprises entre - 55 °C et 260 °C - Partie
011 : Famille DM, blindés (guipés) et gainés, marquable au
laser UV - Norme de produit

Luft- und Raumfahrt - Leitungen, elektrisch, ein- und
mehradrig, für allgemeine Verwendung -
Betriebstemperaturen zwischen - 55 °C und 260 °C - Teil
011: DM-Familie, geschirmt (Umseilung) und ummantelt UV
Laser bedruckbar - Produktnorm

This European Standard was approved by CEN on 12 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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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<https://standards.iteh.ai/catalog/standards/sist/0cc7b2da-56c7-455c-91cb-a140b61bc083/sist-en-2714-011-2006>

Foreword

This European Standard (EN 2714-011:2005) 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 April 2006, and conflicting national standards shall be withdrawn at the latest by April 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.

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1 Scope

This standard specifies the characteristics of UV laser printable DM family, single and multicore screened (spiral) and jacketed electrical lightweight cables for use in the on-board electrical systems of aircraft, at operating temperatures between $-55\text{ }^{\circ}\text{C}$ and $260\text{ }^{\circ}\text{C}$. Nevertheless, if needed, $-65\text{ }^{\circ}\text{C}$ is also acceptable as shown by cold test.

It shall also be possible to mark these cables by qualified compatible marking.

These markings shall satisfy the requirements of 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 2235, *Aerospace series — Single and multicore electrical cables, screened and jacketed — Technical specification.* ¹⁾

EN 2267-007, *Aerospace series — Cables, electrical, for general purpose — Operating temperatures between $-55\text{ }^{\circ}\text{C}$ and $260\text{ }^{\circ}\text{C}$ — Part 007: DMA family, single ink-jet printable and multicore assembly — Product standard.* ¹⁾

EN 2714-002, *Aerospace series — Cables, electrical, single and multicore for general purpose — Operating temperatures between $-55\text{ }^{\circ}\text{C}$ and $260\text{ }^{\circ}\text{C}$ — 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 4434, *Aerospace series — Copper or copper alloy lightweight conductors for electrical cables — Product standard (Normal and tight tolerances).*

EN 9133, *Aerospace series — Quality management systems — Qualification Procedure for Aerospace Standard Parts.*

3 Terms, definitions and symbols

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

* 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 2267-007;
- 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 spiral screen;
- for dimensions of strands, see Table 1;
- material according to EN 4434, 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 0,076 mm thick running in opposite direction to first layer with 51 % min. overlap.

4.2 Construction

See EN 4434 and Table 1.

Table 1

Number of cores	Code for nominal section	Nominal section	AWG ^a	Linear resistance at 20 °C	Screen strands nominal diameter	External diameter	Mass
		mm ²		Ω/km max.		mm	
1	001	0,15	26	160,0	0,08	1,47	5,63
	002	0,25	24	114,0	0,08	1,53	6,44
	004	0,4	22	60,0	0,08	1,69	8,19
	006	0,6	20	33,2	0,08	2,05	12,42
	010	1	18	21,1	0,08	2,33	17,28
	012	1,2	16	14,5	0,10	2,77	24,57
	020	2	14	10,9	0,10	3,03	31,16
	030	3	12	6,8	0,10	3,49	43,63
	051	5	10	4,1	0,12	4,13	66,65
2	001	0,15	26	165,00	0,08	2,43	9,78
	002	0,25	24	117,00	0,08	2,55	11,35
	004	0,4	22	61,70	0,08	2,87	14,75
	006	0,6	20	34,10	0,10	3,62	24,10
	010	1	18	21,70	0,10	4,19	33,67
	012	1,2	16	14,90	0,12	5,02	47,76
	020	2	14	11,20	0,15	5,61	63,64
	030	3	12	6,99	0,20	6,65	94,47
	051	5	10	4,22	0,20	7,87	139,07
3	001	0,15	26	165,00	0,08	2,57	13,07
	002	0,25	24	117,00	0,10	2,75	16,36
	004	0,4	22	61,70	0,10	3,09	21,33
	006	0,6	20	34,10	0,12	3,90	34,73
	010	1	18	21,70	0,12	4,51	49,00
	012	1,2	16	14,90	0,15	5,43	70,38
	020	2	14	11,20	0,15	5,99	89,85
	030	3	12	6,99	0,20	7,10	133,30
	051	5	10	4,22	0,20	8,40	198,55
4	001	0,15	26	165,0	0,10	2,86	17,45
	002	0,25	24	117,0	0,10	3,02	20,46
	004	0,4	22	61,7	0,10	3,39	26,98
	006	0,6	20	34,1	0,12	4,30	44,37
	010	1	18	21,7	0,12	4,99	62,90
	012	1,2	16	14,9	0,15	6,00	90,48
	020	2	14	11,2	0,20	6,73	122,32

^a AWG = Closest American Wire Gage.

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-	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 on AWG 26 to 18 3 mm on AWG 16 to 10 core: according to EN 2267-007
403	Delamination and blocking	Applicable Temperature (310 ± 5) °C
404	Thermal shock	Applicable but (– 65 ± 2) °C instead of (– 55 ± 2) °C Temperature (260 ± 5) °C Maximum shrinkage at each end of cable: jacket: 2 mm on AWG 26 to 18 3 mm on AWG 16 to 10 core: according to EN 2267-007
405	Bending at ambient temperature	Applicable
406	Cold bend test	Applicable but (– 65 ± 2) °C

(continued)