
Aeronavtika - Električni kabli, inštalacija - Zaščitne obojke iz meta-aramidnih vlaken - 008. del: Samoovojna zaslonjena (pred EMI) zaščitna obojka iz nikelj-bakrenih niti, z vijavo, z možnostjo poznejše montaže, delovna temperatura od -55 °C do 200 °C - Standard za izdelek

Aerospace series - Electrical cables, installation - Protective sleeves in meta-aramid fibres - Part 008: Self-wrapping shielded (EMI) protective sleeve with nickel copper braid, flexible post installation operating temperature from -55 °C to 200 °C - Product standard

Luft- und Raumfahrt - Elektrische Leitungen, Installation - Schutzschläuche aus Meta-Aramidfasern - Teil 008: Selbstverschließender Schutzschlauch, geschirmt (EMI), mit Nickel Kupfer Geflecht, flexibel, nachträglich montierbar, Temperaturbereich -55 °C bis 200 °C - Produktnorm

Série aérospatiale - Câbles électriques, installation - Gains de protection en fibres méta-aramides - Partie 008: Gaine de protection Blindée (EMI) auto-fermable avec tresse cuivre nickelée, souple après montage température d'utilisation -55 °C à 200 °C - Norme de produit

Ta slovenski standard je istoveten z: EN 6049-008:2013

ICS:

49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems
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SIST EN 6049-008:2014

en,fr,de

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EUROPEAN STANDARD

EN 6049-008

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2013

ICS 49.060

English Version

Aerospace series - Electrical cables, installation - Protective sleeves in meta-aramid fibres - Part 008: Self-wrapping shielded (EMI) protective sleeve with nickel copper braid, flexible post installation operating temperature from - 55 °C to 200 °C - Product standard

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Foreword

This document (EN 6049-008:2013) 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of an identical text or by endorsement, at the latest by July 2013, and conflicting national standards shall be withdrawn at the latest by July 2013.

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.

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EN 6049-008:2013 (E)**1 Scope**

This European Standard specifies the characteristics of post installation flexible self-wrapping EMI shielding protection sleeves for electrical cable and cable bundles made from meta-aramid fibres for the external sleeve, and nickel copper plated braid as the internal layer and provided with a water repellent protection for aerospace application.

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 2825, *Aerospace series — Burning behaviour of non metallic materials under the influence of radiating heat and flames — Determination of smoke density*

EN 2826, *Aerospace series — Burning behaviour of non metallic materials under the influence of radiating heat and flames — Determination of gas components in the smoke*

EN 2591-214, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 214: Lightning strike, current and voltage pulse*

EN 2591-305, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 305: Rapid change of temperature*

EN 2591-307, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 307: Salt mist*

EN 3475-301, *Aerospace series — Cables, electrical, aircraft use — Test methods — Part 301: Ohmic resistance per unit length*

EN 3475-705, *Aerospace series — Cables, electrical, aircraft use — Test methods — Part 705: Contrast measurement*

EN 3844-1, *Aerospace series — Flammability of non metallic materials — Part 1: Small burner test, vertical — Determination of the vertical flame propagation*

EN 6049-001, *Aerospace series — Electrical cables, installation — Protection sleeve in meta-aramid fibres — Part 001: Technical specification*¹⁾

EN 6059 (all parts), *Aerospace series — Electrical cables, installation — Protection sleeves — Test methods*

1) Published as ASD-STAN Prestandard at the date of publication of this standard (www.asd-stan.org).

IEC 60096-0-1, *Radio-frequency cables — Part 0: Guide to the design of detailed specifications — Section 1: Coaxial cables* ²⁾

ASTM B355, *Standard Specification for Nickel-Coated Soft or Annealed Copper Wire* ³⁾

ASTM D1000, *Standard Test Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications* ³⁾

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 6049-001 and the following apply.

3.1

after ageing

the ageing is to be understood as the effect of environmental test(s) listed in section 5 on the product performance at the end of a qualification test group

3.2

overlap angle

sleeve overlap angle for maximum wire bundle diameter

4 Required characteristics

4.1 Composition

A textile and metal openable, self-wrappable sleeving made of two layers:

- External layer: a woven blend of textured meta-aramid continuous yarn and polyphenylene sulfide (PPS) monofilament. A specific feature avoids excessive fraying of the sleeving after cold cutting.
- Internal layer: a metallic flat braid made of nickel copper strands as per ASTM B355 Class 27, with an option of adhesive polytetrafluoroethylene (PTFE) tape as per ASTM D1000.

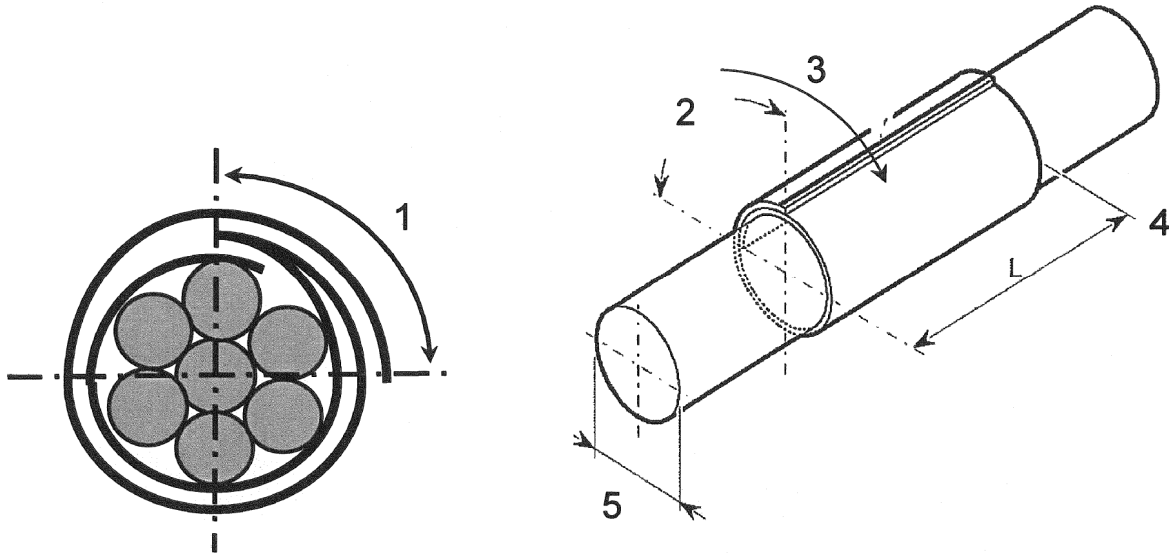
2) Published by: IEC International Commission Electrotechnique Internationale <http://www.iec.ch/>.

3) Published by: ASTM National (US) American Society for Testing and Materials <http://www.astm.org/>.

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4.2 Dimensions and mass of the sleeve

See Figure 1, Table 1 and Table 2.



Key

- 1 90° of overlap
- 2 Sleeve identification by a blue tracer line separated by a green Nomex filament at this longitudinal edge.
- 3 Overlap angle
- 4 Ivory tracer indicating the maximum operating diameter.
- 5 Mandrel diameter = maximum bundle diameter. Indicated per internal ivory line for maximum permissible bundle diameter.

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Figure 1 — Configuration

Table 1 — Dimensions and mass (without adhesive PTFE tape layer)

Size code	Overlap angle measured on a mandrel (mandrel dia. = max. dia. bundle)		Wall thickness mm	Diameters to be protected mm	Procurement length <i>L</i> m	Maximum mass g/m
	min.	max.				
06	65°	130°	2,35	1 to 6	50	79
11			1,60	6 to 11		92
14				11 to 14	25	116
17			14 to 17	149		
23	70°	110°	1,60	17 to 23	25	175
30				23 to 30		235
38				30 to 38		305

Table 2 — Dimensions and mass (with adhesive PTFE tape layer)

Size code	Overlap angle measured on a mandrel (mandrel dia. = max. dia. bundle)		Wall thickness mm	Diameters to be protected mm	Procurement length <i>L</i> m	Maximum mass g/m
	min.	max.				
06	65°	130°	2,44	1 to 6	50	86
11			1,69	6 to 11		102
14				11 to 14	25	132
17				14 to 17		165
23	70°	110°		17 to 23		196
30			23 to 30	262		
38			30 to 38	339		

4.3 Colour, materials and tracer line identification

4.3.1 Colour

In accordance with Table 3:

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Table 3 — Colour

Colour code	Colour
5	Olive green

4.3.2 Materials

External layer: The materials shall be multifilament fibres of meta-aramid and PPS monofilament and meet the requirements as specified in this standard.

Internal layer: The material shall be metallic nickel copper flat braid. Strands shall be in accordance with ASTM B355 Class 27.

4.3.3 Tracer line identification

The sleeve is delivered with a blue “tracer line” with a width of 9 mm over its complete length marked to identify the shielding protection. The blue tracer line shall remain visible when installed on a harness of the minimum or maximum diameter as per Table 1 or Table 2.

4.3.4 Adhesive PTFE tape

The sleeve can be delivered with an adhesive PTFE tape as per ASTM D1000 for electrical insulation between the cables and the metallic flat braid; see Table 4.