

SLOVENSKI STANDARD

SIST EN 6049-008:2018

01-februar-2018

Nadomešča:

SIST EN 6049-008:2014

Aeronavtika - Električni kabli, namestitve - Zaščitna obojka iz meta-aramidnih vlaken - 008. del: Samoovojna zaslonjena (EMI) zaščitna obojka iz nikelj-bakrenih niti, upogljiva, z možnostjo poznejše montaže, delovna temperatura od -55 °C do 200 °C - Standard za proizvod

Aerospace series - Electrical cables, installation - Protection sleeve 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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Luft- und Raumfahrt - Elektrische Leitungen, Installation - Schutzschläuche aus Meta-Aramidfasern - Teil 008: Selbstverschließender Schutzschlauch, geschirmt (EMI), mit Nickel-Kupfer-Geflecht, flexibel, nachträglich montierbar, Betriebstemperatur - 55 °C bis 200 °C - Produktnorm

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

Ta slovenski standard je istoveten z: EN 6049-008:2017

ICS:

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

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en,fr,de

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EUROPEAN STANDARD

EN 6049-008

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2017

ICS 49.060

Supersedes EN 6049-008:2013

English Version

**Aerospace series - Electrical cables, installation -
Protection sleeve 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**

Série aéronautique - Câbles électriques, installation -
Gaine de protection en fibres méta-aramides - Partie
008 : Gaine de protection blindée (EMI) autofermable
avec tresse en cuivre nickelé, souple après montage
température d'utilisation -55 °C à 200 °C - Norme de
produit

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

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This European Standard was approved by CEN on 23 July 2017.

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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: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 6049-008:2017) 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 European 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 May 2018, and conflicting national standards shall be withdrawn at the latest by May 2018.

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 6049-008:2013.

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

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EN 6049-008:2017 (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 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 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 3475-301, *Aerospace series — Cables, electrical, aircraft use — Test methods — Part 301: Ohmic resistance per unit length*

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*

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

IEC 62153-4-3, *Metallic communication cable test methods — Part 4-3: Electromagnetic compatibility (EMC) — Surface transfer impedance — Triaxial method* ¹⁾

ASTM B355, *Standard Specification for Nickel-Coated Soft or Annealed Copper Wire* ²⁾

ASTM D1000, *Standard Test Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications* ²⁾

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

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

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 Clause 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:

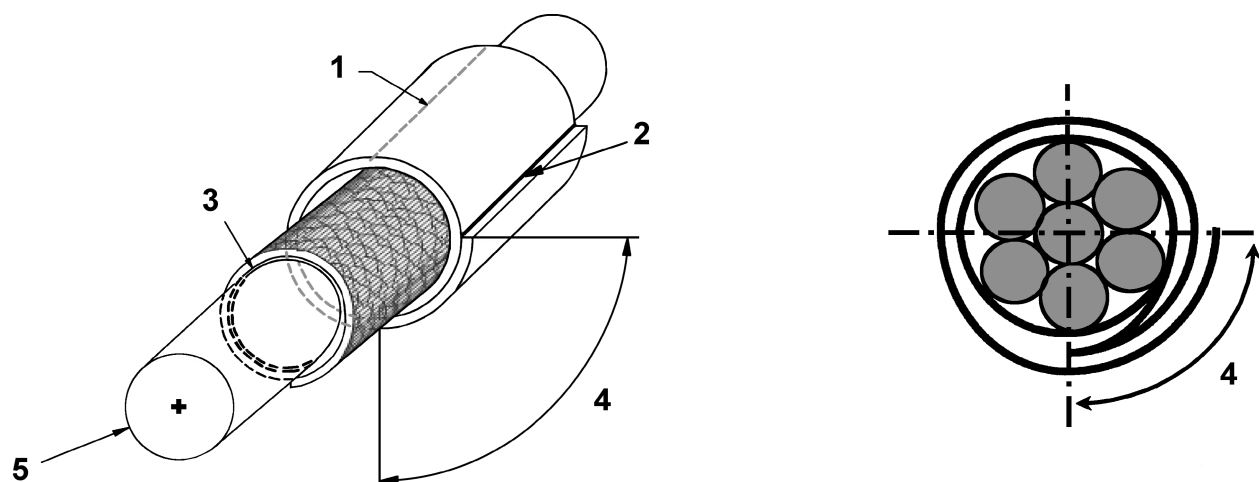
- External layer: a woven blend of textured meta-aramid continuous yarn and polyphenylene sulfide (PPS) monofilament. A specific feature avoids excessive fraying of the sleeving after cold cutting.
- Internal layer: a metallic flat braid made of nickel copper strands as per ASTM B355 Class 27, with an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

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4.2 Dimensions and mass of the sleeve

See Figure 1, Table 1 and Table 2.



Key

- 1 Blue tracer (for EMI shielding identification)
- 2 Ivory tracer (indicating minimum coverage)
- 3 PTFE layer (optional)
- 4 Covering angle
- 5 Diameter mandrel

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Figure 1 — Configuration

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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 m	Mass max. 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 m	Mass max. 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	132	
17				14 to 17		25
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 European 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 will be delivered with a blue "tracer line" on its whole 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.