SLOVENSKI STANDARD
SIST EN 6049-009:2016

01-junij-2016

Aeronavtika - Električni kabli, namestitev - Zaščitne obojke iz meta-aramidnih vlaken - 009. del: Samoovojna požarno zaščitna obojka, zvijava, z možnostjo poznejše montaže, delovna temperatura od -55 °C do 260 °C - Standard za proizvod

Aerospace series - Electrical cables, installation - Protection sleeve in meta-aramid fibres - Part 009: Self-wrapping fire protection sleeve, flexible, post installation, operating temperature from - 55 °C to 260 °C - Product standard

Luft- und Raumfahrt - Elektrische Leitungen, Installation - Schutzschläuche aus Meta-Aramidfasern - Teil 009: Selbstverschliebender Schutzschlauch, flexibel, nachträglich montierbar, Temperaturbereich - 55 °C bis 260 °C - Produktnorm

Série aérospatiale - Câbles électriques, installation - Gaine de protection en fibres méta-aramides - Partie 009 : Gaine de protection auto-fermable, souple, montage après installation, température dútilisation - 55 °C à 260 °C - Norme de produit

Ta slovenski standard je istoveten z: **EN 6049-009:2016**

ICS:

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

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EUROPEAN STANDARD

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English Version

Aerospace series - Electrical cables, installation - Protection sleeve in meta-aramid fibres - Part 009: Self-wrapping fire protection sleeve, flexible, post installation, operating temperature from -55 °C to 260 °C - Product standard

Série aérospatiale - Câbles électriques, installation - Gaine de protection en fibres méta-aramides - Partie 009 : Gaine de protection auto-fermable, souple, montage après installation, température d'utilisation -55 °C à 260 °C - Norme de produit

Luft- und Raumfahrt - Elektrische Leitungen, Installation - Schutzschläuche aus Meta-Aramidfasern - Teil 009: Selbstverschließender Feuerschutzschlauch, flexibel, nachträglich montierbar, Betriebstemperatur von -55 °C bis 260 °C - Produktnorm

This European Standard was approved by CEN on 28 June 2014.

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 CEN-CENELEC Management Centre or to any CEN member.

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

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European foreword

This document (EN 6049-009:2016) 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 October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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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1 Scope

This European Standard specifies the characteristics of post installation flexible self-wrapping fire protection sleeves for electrical cable and cable bundles, providing 360° fire protection to electrical harnesses. The sleeve assembly gives fire resistance protection to the internal electrical harness against fire for five minutes, and ensures that the electrical characteristics of cables will not be degraded.

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 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*

ISO 2685, *Aircraft — Environmental test procedure for airborne equipment — Resistance to fire in designated fire zones* [1)]

AMS-DTL-23053E, *Insulation sleeving, electrical, heat-shrinkable, general specification for* [2)]

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
overlap angle
sleeve overlap angle for maximum wire bundle diameter

1) Published by: ISO International Organization for Standardization http://www.iso.org/

2) Published by: SAE National (US) Society of Automotive Engineers http://www.sae.org/

4 Required characteristics

4.1 Requirements

The sleeve shall protect the internal electrical harness against fire for five minutes, and will ensure that the electrical characteristics of cables will not be degraded. The composition of the sleeve shall be such that a uniform circular cross-section is maintained throughout the length of the harness to be protected. The material used in the manufacture of the sleeve shall have no corrosive effects upon the harness, and shall not be susceptible to attack by mould or other microorganisms.

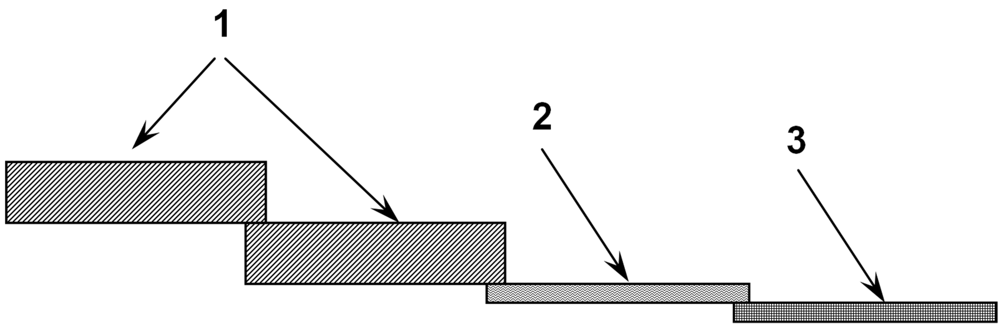
4.2 Composition

The multi-layer, thick wall sleeve is self-wrapping and openable and is of one continuous width made up of three different materials attached edge to edge. See Table 1 and Figure 1, Figure 2 and Figure 3. Where the sleeve is to be fitted to branched harnesses, the sleeve junctions may be protected by wrapping with a similar flat-sectioned multi-layer, thick wall tape made up of three different materials attached face to face. See Table 2 size code 00 and Figure 4.

Table 1 — Composition

Item number [a]	Layer when wrapped	Function	Material	Colour
1	Inner	Thermal protection	Oxidized polyacrylonitrile (PANOX) fibres	Black
2	Centre	Thermal protection	Silica fibres	White
3	Outer	Mechanical and fire protection	Textured meta-aramid continuous yarn and polyetheretherketone (PEEK) monofilament. A specific feature avoids excessive fraying of the sleeving after cutting.	Olive drab

[a] See Figure 1, Figure 2 and Figure 4.



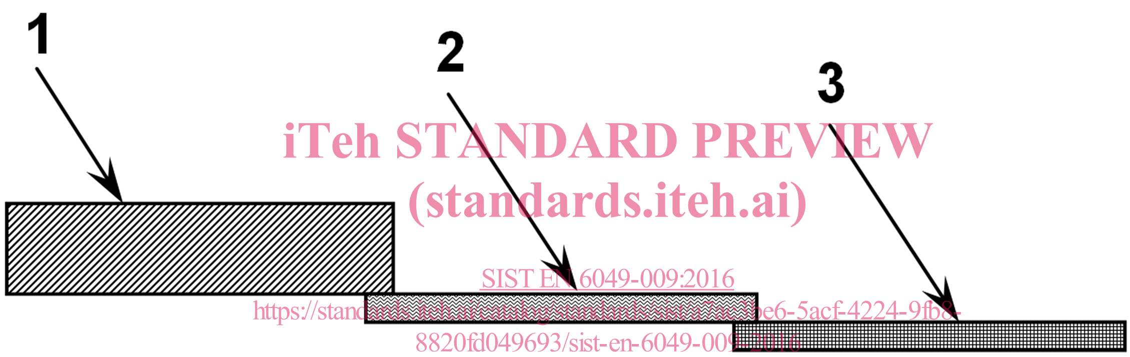
Key

1 Inner layer

2 Centre layer

3 Outer layer

Figure 1 — Sleeve composition – size code 10 (not to scale – sleeve shown opened flat)



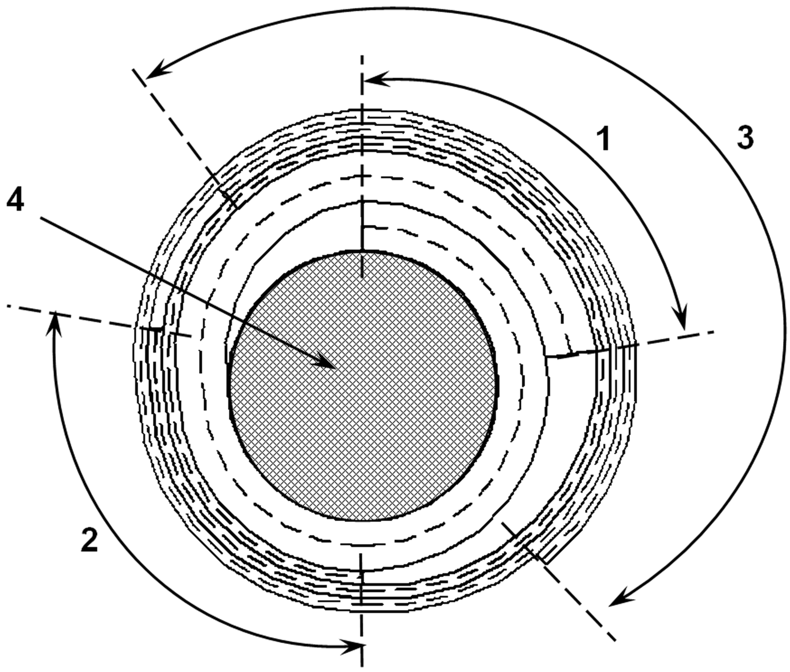
Key

1 Inner layer

2 Centre layer

3 Outer layer

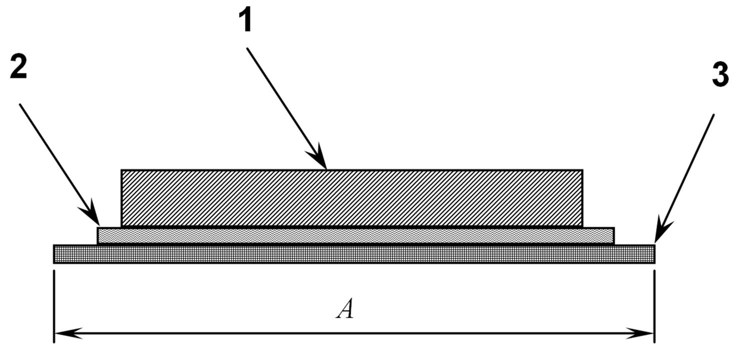
Figure 2 — Sleeve composition – size codes 16, 24, and 32 (not to scale – sleeve shown opened flat)



Key

1 Inner layer overlap
2 Centre layer overlap
3 Outer layer overlap
4 Cable bundle

Figure 3 — Self-wrapping sleeve installed on a cable bundle (not to scale)



Key

1 Inner layer
2 Centre layer
3 Outer layer

Figure 4 — Tape composition – size code 00 (not to scale)