

Aerospace series - Sleeves, heat-shrinkable, for
binding, insulation and identification - Part 201:
Polyolefin identification sleeves - Operating
Temperature range -55 °C to 135 °C - Product standard

EESTI STANDARDI EESSÕNA

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ICS 49.060

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EUROPEAN STANDARD

EN 4708-201

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2022

ICS 49.035; 49.060

English Version

**Aerospace series - Sleeves, heat-shrinkable, for binding,
insulation and identification - Part 201: Polyolefin
identification sleeves - Operating Temperature range -55
°C to 135 °C - Product standard**

Série aérospatiale - Manchons thermo rétractables, de
jonction, isolement et identification - Partie 201 :
Identification Manchons Polyoléfine - Températures
d'utilisation -55 °C à 13 °C - Norme de produit

Luft- und Raumfahrt - Wärmeschrumpfender Schlauch
zur Befestigung, Isolierung und Identifizierung - Teil
201: Kennzeichnungsschlauch aus Polyolefin,
Betriebstemperaturbereich -55 °C bis 135 °C -
Produktnorm

This European Standard was approved by CEN on 24 July 2022.

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European foreword

This document (EN 4708-201:2022) 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 document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, 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of an identical text or by endorsement, at the latest by June 2023, and conflicting national standards shall be withdrawn at the latest by June 2023.

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1 Scope

This document specifies the required characteristics for heat-shrinkable polyolefin identification sleeving for use in aircraft electrical systems at operating temperatures between $-55\text{ }^{\circ}\text{C}$ and $135\text{ }^{\circ}\text{C}$.

This specification is for the characterisation of identification sleeves only.

This sleeving is flexible and flame retarded, and is available with 2:1 and 3:1 shrink ratios.

The product is normally supplied with internal diameters up to 57 mm.

The standard colours are white or yellow.

Sizes or colours other than those specifically listed in this standard may be available. These items are considered to comply with this document if they comply with the property requirements listed in tables 3 and 4 except for dimensions and mass.

As the sleeving to be tested is a printed article the complete system is to be recorded as part of the evaluation. The sleeve will only be considered as meeting the requirements of this document if printed with the printer, ribbon, inks, and settings referenced within the test report.

Mark adherence and print permanence are determined in this document using method EN 6059-407.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 3909:2016, *Aerospace series — Test fluids and test methods for electrical and optical components and sub-assemblies*

EN 4708-001:2019, *Aerospace series — Sleeving, heat-shrinkable, for binding, insulation and identification — Part 001: Technical specification*

EN 6059-407:2019, *Aerospace series — Electrical cables, installation — Protection sleeves — Test methods — Part 407: Mark adherence and print permanence*

EN 60684-1, *Flexible insulating sleeving — Part 1: Definitions and general requirements*

EN 60684-2:2011, *Flexible insulating sleeving — Part 2: Methods of test*

IEC 60757, *Code for designation of colours*

ISO 846:2019, *Plastics — Evaluation of the action of microorganisms*

ISO 1817:2022, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 11075, *Aircraft — De-icing/anti-icing fluids — ISO type I*

ISO 11078, *Aircraft — De-icing/anti-icing fluids — ISO type II, III and IV*

AMS1428, *Fluid, Aircraft Deicing/Anti-Icing, Non-Newtonian (Pseudoplastic), SAE Types II, III, and IV¹*

¹ Published by SAE International (US) Society of Automotive Engineers (www.sae.org)

ASTM D740-11, Standard Specification for Methyl Ethyl Ketone²

MIL-PRF-87937, CLEANING COMPOUND, AEROSPACE EQUIPMENT³

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 60684-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Required characteristics

4.1 Dimensions and mass

Table 1 — Dimensional and mass requirements — 2:1 product

Size code	Internal diameter		Recovered wall thickness	Mass per unit length g/m
	Expanded min.	Recovered max.		
2,4/1,2	2,4	1,2	0,51 ± 0,08	4,8
3,2/1,6	3,2	1,6	0,51 ± 0,08	6,1
4,8/2,4	4,8	2,4	0,51 ± 0,08	8,2
6,4/3,2	6,4	3,12	0,64 ± 0,08	13,5
9,5/4,8	9,5	4,8	0,64 ± 0,08	19,5
12,7/6,4	12,7	6,4	0,64 ± 0,08	25,0
19,0/9,5	19,0	9,5	0,76 ± 0,08	43,0
38,1/19,0	38,1	19,0	0,51 ± 0,08	57,0
50,8/25,4	50,8	25,4	0,64 ± 0,08	97,0

² Published by ASTM International American Society for Testing and Materials (www.astm.org)

³ Published by DoD National (US) Mil. Department of Defense (<http://www.defenselink.mil/>)