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**Aeronavtika - Ozemljitvene zbiranke za letala - 006. del: Okrogli pleteni bakreni vodniki za ozemljitvene zbiranke, pocinkani do 150 °C ali ponikljani do 260 °C - Standard za proizvod**

Aerospace series - Bonding straps for aircraft - Part 006: Round braid copper conductors for bonding straps, tin plated up to 150 °C or nickel plated up to 260 °C - Product standard

Luft- und Raumfahrt - Masseverbinder für Luftfahrzeuge - Teil 006: Geflechtleiter aus Kupfer für Masseverbinder, verzinkt bis 150 °C oder vernickelt bis 260 °C - Produktnorm

Série aérospatiale - Tresses de métallisation pour avion - Partie 006 : Conducteur en cuivre de section circulaire, étamé jusqu'à 150 °C ou nickelé jusqu'à 260 °C - Norme de produit

**Ta slovenski standard je istoveten z: EN 4199-006:2006**

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**ICS:**

49.060 Štejni sistemi za letala in zrakoplove, vključno s sistemom za oprejanje in vzdrževanje letal, zrakoplovov in helikoptrov  
Aerospace electric equipment and systems

**SIST EN 4199-006:2009**

**en,de**

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EUROPEAN STANDARD

EN 4199-006

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2006

ICS 49.060

English Version

**Aerospace series - Bonding straps for aircraft - Part 006: Round braid copper conductors for bonding straps, tin plated up to 150 °C or nickel plated up to 260 °C - Product standard**

Série aérospatiale - Tresses de métallisation pour avion -  
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étamé jusqu'à 150 °C ou nickelé jusqu'à 260 °C - Norme de  
produit

Luft- und Raumfahrt - Masseverbinder für Luftfahrzeuge -  
Teil 006: Geflechtleiter aus Kupfer für Masseverbinder  
verzinkt bis 150 °C oder vernickelt bis 260 °C -  
Produktnorm

This European Standard was approved by CEN on 6 February 2006.

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.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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## Foreword

This European Standard (EN 4199-006:2006) 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 November 2006, and conflicting national standards shall be withdrawn at the latest by November 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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**EN 4199-006:2006 (E)****1 Scope**

This standard defines the required characteristics for round braid copper conductors for round bonding straps in tin plated or nickel plated. It shall be used together with terminal lugs according to EN 3373-004.

It shall be used together with EN 4199-001.

**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 3373-004, *Aerospace series — Terminal lugs in-line splices for crimping on electric cables — Part 004: Copper lugs, ring shape for copper cables tin plated 120 °C — Product standard.*<sup>1)</sup>

EN 4199-001, *Aerospace series — Bonding straps for aircraft — Part 001: Technical specification.*

EN 13602, *Copper and copper alloys — Drawn, round copper wire for the manufacture of electrical conductors.*

ASTM B 355, *Standard specification for nickel-coated soft or annealed copper wire.*

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**3 Terms and definitions**

For the purposes of this standard, the terms and definitions given in EN 4199-001 apply.

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**4 Required characteristics****4.1 Temperature ranges**

Round braid copper conductors for bonding straps:	Class T : Tin plated	– 65 °C to 150 °C
	Class N : Nickel plated	– 65 °C to 260 °C

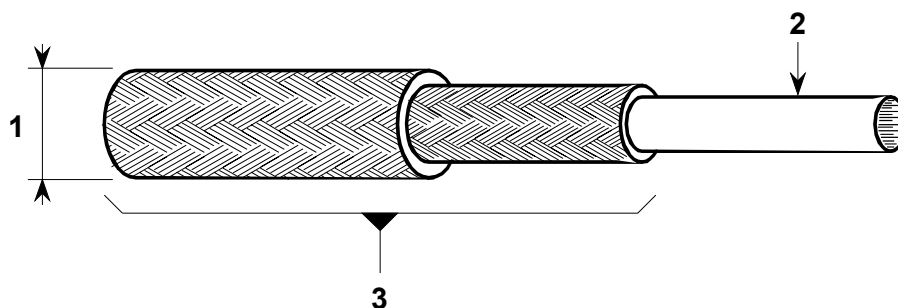
**4.2 Configuration, dimensions and mass**

Configuration, dimensions and mass shall conform with Figure 1, Table 1 and Table 2.

Dimensions and tolerances are in millimetres.

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1) In preparation at the date of publication of this standard.

**Key**

- 1 External  $\varnothing$
- 2 See Table 1 (composition)
- 3 See Table 1 (number of lead - bondings)

**Figure 1****Table 1**

Code section cross	Section mm <sup>2</sup>	Composition of the core	Number of wire of the core	1 <sup>st</sup> braid	2 <sup>nd</sup> braid	3 <sup>rd</sup> braid
A	1,4	$7 \times 7 \times 0,15$	49	16 carriers of 2 ends	None	
B	3,5	$19 \times 7 \times 0,15$	133	16 carriers of 4 ends	None	
C	4,5		133	16 carriers of 3 ends	16 carriers of 5 ends	None
D	7		133	16 carriers of 3 ends	16 carriers of 6 ends	8 carriers of 8 ends 8 carriers of 7 ends
E	13	$52 \times 7 \times 0,15$	364	16 carriers of 6 ends	8 spindles of 8 strands 8 carriers of 7 ends	16 carriers of 10 ends

**Table 2**

Code section cross	Number of strands 0,150	External $\varnothing$ max.	Mass max. g/m	Resistance at 20 °C under 1 A $\Omega$ /km
A	81	2,00	13,0	17,00
B	197	2,90	32,5	5,40
C	261	3,45	43,5	4,00
D	397	4,20	65,6	3,00
E	740	5,90	128,0	1,45

**EN 4199-006:2006 (E)****4.3 Material and finish**

Single copper wire Cu ETP according to EN 13602; diameter = 0,15 mm.

Tin plating: 0,1 µm min. of free tin (quality C) according to EN 13602.

Nickel plating: 1,5 µm min. (class 4 %) according to ASTM B 355.

**5 Quality test**

See EN 4199-001.

**6 Periodic tests**

Acceptance tests (see EN 4199-001).

Maintenance of qualification (see EN 4199-001).

**7 Designation**

EXAMPLE

<b>iTeh STANDARD PREVIEW</b> (standards.iteh.ai)	
Description block	Identity block
<b>BONDING STRAP</b>	<b>EN4199-006BN</b>
<u>SIST EN 4199-006:2009</u>	
Number of this standard	<a href="https://standards.iteh.ai/catalog/standards/sist/ccc87a04-3054-47dc-a54e-751fdefe6737/sist-en-4199-006-2009">https://standards.iteh.ai/catalog/standards/sist/ccc87a04-3054-47dc-a54e-751fdefe6737/sist-en-4199-006-2009</a>
Cross section code (see Table 1)	_____
Finish (see EN 4199-001, Table1)	_____

NOTE If necessary, the code I9005 shall be placed between the description block and the identity block.

**8 Marking**

The manufacturer of the round braid copper conductor shall be identified by colour coded wire.

**9 Packaging**

Unless otherwise agreed between manufacturer and user, bonding straps shall be so packed as to avoid any damage under normal conditions of transportation.

The marking at the package shall include:

- the designation of this product standard;
- the manufacturer's name or trademark;
- length of the round braid copper conductor.