

SLOVENSKI STANDARD

SIST EN 4199-004:2015

01-februar-2015

Nadomešča:

SIST EN 4199-004:2009

Aeronavtika - Ozemljitvene zbiranke za letala - 004. del: Okrogle bakrene ozemljitvene zbiranke, pocinkane od -65 °C do vključno 150 °C in ponikljane od -65 °C do vključno 260 °C - Standard za proizvod

Aerospace series - Bonding straps for aircraft - Part 004: Round bonding straps, copper, tin plated - 65 °C up to 150 °C and nickle plated - 65 °C up to 260 °C - Product Standard

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Luft- und Raumfahrt - Masseverbinder für Luftfahrzeuge - Teil 004: Runde Masseverbinder aus Kupfer verzinkt - 65 °C bis 150 °C aus Kupfer vernickelt - 65 °C bis 260 °C - Produktnorm

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Série aérospatiale - Tresses de métallisation pour avion - Partie 004 : Tresse ronde, en cuivre étamé de - 65 °C à 150 °C et en cuivre nickelé de - 65 °C à 260 °C - Norme de produit

Ta slovenski standard je istoveten z: EN 4199-004:2014

ICS:

49.060

Letalska in vesoljska
električna oprema in sistemi

Aerospace electric
equipment and systems

SIST EN 4199-004:2015

en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 4199-004

November 2014

ICS 49.060

Supersedes EN 4199-004:2009

English Version

Aerospace series - Bonding straps for aircraft - Part 004: Round bonding straps, copper, tin plated -65 °C up to 150 °C and nickel plated -65 °C up to 260 °C - Product Standard

Série aérospatiale - Tresses de métallisation pour avion -
Partie 004 : Tresse ronde, en cuivre étamé de -65 °C à 150
°C et en cuivre nickelé de -65 °C à 260 °C - Norme de
produit

Luft- und Raumfahrt - Masseverbinder für Luftfahrzeuge -
Teil 004: Runde Masseverbinder aus Kupfer verzinnt -65 °C
bis 150 °C aus Kupfer vernickelt -65 °C bis 260 °C -
Produktnorm

This European Standard was approved by CEN on 11 October 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.

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.

CEN members are the national standards bodies of 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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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Foreword

This document (EN 4199-004:2014) 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 May 2015, and conflicting national standards shall be withdrawn at the latest by May 2015.

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, 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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EN 4199-004:2014 (E)**1 Scope**

This standard defines the required characteristics for round bonding straps in tin plated and nickel plated version, in different cross sections and lengths, with terminal lugs on both ends (same or different types) for aerospace applications.

It shall be used together with EN 4199-001.

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 3373-001, *Aerospace series — Terminal lugs and in-line splices for crimping on electric conductors — Part 001: Technical specification*

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

EN 4199-006, *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*

EN 9133, *Aerospace series — Quality management systems — Qualification procedure for aerospace standard parts*

ISO 3:1973, *Preferred numbers — Series of preferred numbers*

3 Terms and definitions

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

4 Required characteristics**4.1 Temperature range**

Bonding straps, copper, tin plated braid conductor and terminal lugs, class T : –65 °C up to 150 °C.

Bonding straps, copper, nickel plated braid conductor and terminal lugs, class N : –65 °C up to 260 °C.

4.2 Cross section of the braid

See Table 1.

Table 1

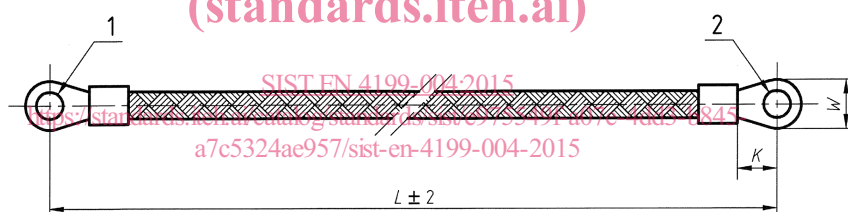
Cross section			Test Current A	Tensile Test N
Code	mm ²	Terminal lug size		
A	1,4	Code 012/AWG16	22	180
B	3,5	Code 030/AWG12	45	450
C	4,5	Code 050/AWG10	52	700
D	7	Code 090/AWG-8	64	1 080
E	13	Code 140/AWG06	95	1 540

4.3 Cross section code A (1,4 mm²) with terminal lugs for Code 012 or AWG16 cables

4.3.1 Dimensions and masses

See Figure 1, Table 2 and Table 3.

Dimensions and tolerances are in millimetres.



Key

- 1 Terminal lug 1
- 2 Terminal lug 2

Figure 1

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Table 2

Combination Variant Code	Assemblies				Mass (g)								
	End 1		End 2		Lengths								
	Stud	Ø	Stud	Ø	63	80	100	125	160	200	250	315	400
					M	N	P	Q	R	S	T	U	V
A	#6	3,5	#6	3,50	1,75	1,95	2,20	2,55	3,00	3,50	4,15	5,00	6,10
B	#8	4,17	#6	3,50	1,95	2,20	2,45	2,80	3,20	3,75	4,40	5,25	6,35
C	#10	4,83	#6	3,50	1,95	2,15	2,40	2,75	3,20	3,70	4,35	5,20	6,30
D	1/4	6,35	#6	3,50	2,25	2,45	2,70	3,05	3,50	4,00	4,65	5,50	6,60
E	#8	4,17	#8	4,17	2,20	2,40	2,65	3,00	3,45	3,95	4,60	5,45	6,55
F	#10	4,83	#8	4,17	2,15	2,40	2,65	2,95	3,40	3,95	4,60	5,45	6,55
G	1/4	6,35	#8	4,17	2,45	2,70	2,95	3,25	3,70	4,25	4,90	5,75	6,85
H	#10	4,83	#10	4,83	2,10	2,35	2,60	2,95	3,40	3,90	4,55	5,40	6,50
J	1/4	6,35	#10	4,83	2,45	2,65	2,90	3,25	3,70	4,20	4,85	5,70	6,80
K	1/4	6,35	1/4	6,35	2,75	2,95	3,20	3,55	4,00	4,50	5,15	6,00	7,10
L	5/16	7,94	#10	4,83	2,30	2,61	2,80	3,15	3,55	4,05	4,70	5,40	6,65
M	5/16	7,94	5/16	7,94	2,60	2,75	2,90	3,25	3,75	4,30	4,90	5,70	6,90

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Table 3

Terminals			
Stud	Ø	K	W
#6	3,50	4,40	6,30
#8	4,17	7,10	8,70
#10	4,83	7,10	8,70
1/4	6,35	11,10	11,90
5/16	7,94	11,10	11,90
Terminal thickness: 0,84			

4.3.2 Recommended lengths (R10 series as per standard ISO 3) and maximum resistance

See Table 4.

Table 4

Length <i>L</i>	63	80	100	125	160	200	250	315	400
Resistance (mΩ)	1,16	1,45	1,79	2,22	2,81	3,49	4,34	5,45	6,89

4.3.3 Other lengths possible (exceptional cases)

See Table 5.

Table 5

Length L	190	254	260	280	304	320	460	570
Resistance (mΩ)	3,32	4,36	4,51	4,82	5,24	5,53	7,97	9,78

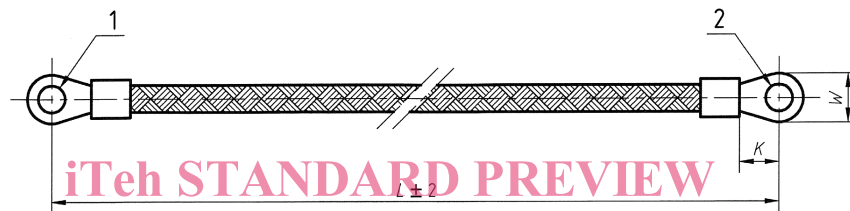
IMPORTANT — Only tin plating for terminal lugs and braid code A.

4.4 Cross section code B (3,5 mm²) with terminal lugs for Code 030 or AWG12 cables

4.4.1 Dimensions and masses

See Figure 2, Table 6 and Table 7.

Dimensions and tolerances are in millimetres.



Key

- 1 Terminal lug 1
- 2 Terminal lug 2

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Table 6

Combination Variant Code	Assemblies				Mass (g)							
	End 1		End 2		Lengths							
	Stud	Ø	Stud	Ø	80	100	125	160	200	250	400	500
					N	P	Q	R	S	T	V	X
A	#6	3,5	#6	3,50	5,70	6,35	7,15	8,30	9,60	11,25	16,10	19,35
B	#8	4,17	#6	3,50	5,65	6,30	7,10	8,25	9,55	11,20	16,05	19,30
C	#10	4,83	#6	3,50	5,60	6,25	7,05	8,20	9,50	11,10	16,00	19,25
D	1/4	6,35	#6	3,50	5,65	6,30	7,15	8,35	9,55	11,10	16,05	19,15
E	#8	4,17	#8	4,17	5,60	6,25	7,05	8,20	9,50	11,10	16,00	19,25
F	#10	4,83	#8	4,17	5,20	5,80	6,30	7,60	8,20	10,40	15,20	18,40
G	1/4	6,35	#8	4,17	4,25	4,90	5,70	6,85	8,15	9,80	14,65	17,90
H	#10	4,83	#10	4,83	5,50	6,15	6,95	8,10	9,40	11,00	15,90	19,15
J	1/4	6,35	#10	4,83	6,10	6,75	7,55	8,70	10,00	11,60	16,50	19,75
K	1/4	6,35	1/4	6,35	6,70	7,35	8,15	9,30	10,60	12,20	17,20	20,35