

SLOVENSKI STANDARD

SIST EN 4644-002:2017

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Nadomešča:

SIST EN 4644-002:2012

Aeronavtika - Konektor, električni in optični, pravokotni, modularni, pravokotni vložki, stalna delovna temperatura 175 °C (ali 125 °C) - 002. del: Specifikacija lastnosti in razporeditev kontaktov

Aerospace series - Connector, electrical and optical, rectangular, modular, rectangular inserts, operating temperature 175 °C (or 125 °C) continuous - Part 002: Specification of performance and contact arrangements

Luft- und Raumfahrt - Elektrische und optische Rechtecksteckverbinder, modular, rechteckige Kontakteinsätze, Dauerbetriebstemperatur 175 °C (oder 125 °C) konstant - Teil 002: Leistungsdaten und Kontaktanordnungen

Série aérospatiale - Connecteur, électrique et optique, rectangulaire, modulaire, à inserts rectangulaires, température de fonctionnement 175 °C (ou 125 °C) continu - Partie 002: Spécification de performances et arrangements de contacts

Ta slovenski standard je istoveten z: EN 4644-002:2016

ICS:

31.220.10	Vtiči in vtičnice, konektorji	Plug-and-socket devices. Connectors
49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems

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EUROPEAN STANDARD

EN 4644-002

NORME EUROPÉENNE

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rectangular, modular, rectangular inserts, operating
temperature 175 °C (or 125 °C) continuous - Part 002:
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(oder 125 °C) konstant - Teil 002: Leistungsdaten und
Kontaktanordnungen

This European Standard was approved by CEN on 21 November 2016.

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

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Contents	Page
European foreword	3
1 Scope	4
2 Normative references	4
3 Terms and definitions.....	6
4 Description of models.....	6
5 Description and codification of shell classes.....	7
6 Operating conditions - Permissible cables dimensions.....	7
7 Operating characteristics	8
8 Product standards.....	9
9 Polarization	10
10 Modules contact arrangements.....	24
11 Contacts.....	28
12 Sealing plugs.....	28
13 Rear accessories.....	28
14 Tooling contacts.....	28
15 Assembly and wiring instructions.....	28

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European foreword

This document (EN 4644-002:2016) 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 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 June 2017, and conflicting national standards shall be withdrawn at the latest by June 2017.

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.

This document supersedes EN 4644-002:2012.

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.

EN 4644-002:2016 (E)**1 Scope**

This European Standard specifies the common conditions for rectangular electrical modular connectors for receptacles and plugs with interchangeable modules and a continuous operating temperature of 175 °C (or 125 °C).

Contact arrangements for fibre optic contacts are described in EN 4639-002.

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 3155-002, *Aerospace series — Electrical contacts used in elements of connection — Part 002: List and utilization of contacts*

EN 3197, *Aerospace series — Design and installation of aircraft electrical and optical interconnection systems*

EN 4529-002, *Aerospace series — Elements of electrical and optical connection — Sealing plugs — Part 002: Index of product standards*

EN 4639-002, *Aerospace series — Connectors, optical, rectangular, modular, multicontact, 1,25 diameter ferrule, with removable alignment sleeve holder — Part 002: List of product standards*

EN 4644-001, *Aerospace series — Connector, electrical and optical, rectangular, modular, rectangular inserts, operating temperature 175 °C (or 125 °C) continuous — Part 001: Technical specification*

EN 4644-003, *Aerospace series — Connector, electrical and optical, rectangular, modular, rectangular inserts, operating temperature 175 °C (or 125 °C) continuous — Part 003: Rectangular inserts — Product standard*

EN 4644-011, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 011: Plug, size 1, class A, C and E — Product standard*

EN 4644-012, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 012: Receptacle, size 1, class A, C and E — Product standard*

EN 4644-013, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 013: Plug, size 1, with ground block, without mounting holes, class B and F — Product standard*

EN 4644-014, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 014: Receptacle, size 1, with ground block, class B and F — Product standard*

EN 4644-021, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 021: Plug, size 2, without mounting holes, class A, C and E — Product standard*

EN 4644-022, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 022: Plug, size 2, with mounting holes, class A, C and E — Product standard*

EN 4644-023, Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 023: Plug, size 2, with ground block, class B and F — Product standard

EN 4644-024, Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 024: Receptacle, size 2, class A, C and E — Product standard

EN 4644-025, Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 025: Receptacle, size 2, with flange, class A, C and E — Product standard

EN 4644-026, Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 026: Receptacle, size 2, with ground block, class B and F — Product standard

EN 4644-124, Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 124: Plug, size 2, class A, C and D — Product standard ¹⁾

EN 4644-125, Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 125: Receptacle, size 2, class A, C and D — Product standard ¹⁾

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EN 4644-126, Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 126: Receptacle, size 2, with float mount, class A, C and D — Product standard ¹⁾

SIST EN 4644-002:2017

EN 4644-131, Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 131: Plug, size 3, for rack and panel applications, class C and D — Product standard

EN 4644-133, Aerospace series — Connector, electrical and optical, rectangular, modular, rectangular inserts, operating temperature 175 °C (or 125 °C) continuous — Part 133: Receptacle, size 3, for rack and panel application, class C and D — Product standard

EN 4644-134, Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 134: Plug, size 3, fix mount, class A, C and D — Product standard ¹⁾

EN 4644-135, Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 135: Receptacle, size 3, fix mount, class A, C and D — Product standard ¹⁾

¹⁾ In preparation at the date of publication of this European Standard.

EN 4644-002:2016 (E)

EN 4644-136, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 136: Receptacle, size 3, float mount, class A, C and D — Product standard*¹⁾

EN 4644-141, *Aerospace series — Connector, electrical and optical, rectangular, modular, rectangular inserts, operating temperature 175 °C (or 125 °C) continuous — Part 141: Plug, size 4, for rack and panel applications, class C and D — Product standard*

EN 4644-142, *Aerospace series — Connector, electrical and optical, rectangular, modular, rectangular inserts, operating temperature 175 °C (or 125 °C) continuous — Part 142: Receptacle, size 4, for rack and panel application, class C and D — Product standard*

EN 4644-144, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 144: Plug, size 4, class A, C and D — Product standard*¹⁾

EN 4644-145, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 145: Receptacle, size 4, class A, C and D — Product standard*¹⁾

EN 4644-201, *Aerospace series — Connector, electrical and optical, rectangular, modular, rectangular inserts, operating temperature 175 °C (or 125 °C) continuous — Part 201: Locking and polarizing hardware — Product standard*

EN 4644-202, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 202: Polarizing hardware — Product standard*

EN 4644-203, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 203: Dust caps — Product standard*¹⁾

EN 4644-204, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 204: Tools — Product standard*¹⁾

EN 4644-301, *Aerospace series — Connector, electrical and optical, rectangular modular, operating temperature 175 °C (or 125 °C) continuous — Part 301: Cable outlet — Product standard*¹⁾

TR 4654-003, *Aerospace series — Connectors, electrical, EN 4644 specific products — Part 003: Inserts with PC tails electrical contacts*²⁾

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 4644-001 apply.

4 Description of models

Modular electrical rectangular, rack and panel or disconnect connectors, environmental resistant with four shells sizes 1, 2, 3 and 4, crimp contacts class R.

2) Published as ASD-STAN Technical Report at the date of publication of this European Standard.
(<http://www.asd-stan.org/>)

5 Description and codification of shell classes

See Table 1.

Table 1

Classes	Description
A	Plug and receptacle with aluminium alloy housing, nickel plated, 96 h resistance to salt mist, without grounding block, maximum operating temperature: 175 °C continuous.
B	Plug and receptacle with aluminium alloy housing, nickel plated, 96 h resistance to salt mist, with grounding block, maximum operating temperature: 175 °C continuous.
C	Plug and receptacle with aluminium alloy housing and aluminium chromatisation plating, 48 h resistance to salt mist, without grounding block, maximum operating temperature: 125 °C continuous.
D	Plug and receptacle with aluminium alloy housing, nickel plated, 96 h resistance to salt mist, with grounding block, maximum operating temperature: 125 °C continuous.
E	Plug and receptacle with composite housing, nickel plated, 96 h resistance to salt mist, without grounding block, maximum operating temperature: 175 °C continuous.
F	Plug and receptacle with composite housing, nickel plated, 96 h resistance to salt mist, with grounding block, maximum operating temperature: 175 °C continuous.

6 Operating conditions - Permissible cables dimensions

The performance of these connectors is achieved with the cables of the dimensions given in Table 2 and using the accessories and wiring tools specified.

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Table 2

Contact size		Size of conductors standard cables		Outer diameter of cables mm	
Contact	Barrel	ASD code	AWG	min.	max.
22	22	004	22	0,86	1,45
		002	24		
		001	26		
20	20	006	20	1,02	1,80
		004	22		
		002	24		
16	16	012	16	1,73	2,62
		010	18		
		006	20		
12	12	030	12	2,46	3,43
		020	14		
8	8	090	8	4,80	5,75
5	8	090	8	4,80	5,75
		050	10		

EN 4644-002:2016 (E)

7 Operating characteristics

7.1 Electrical conditions

- Rated current: according to standards for contacts.
- Insulation resistance at ambient temperature: 5 000 M Ω .
- Withstanding voltage at sea level: 1 500 V r.m.s.
- Withstanding voltage from 15 000 m to 21 000 m: 800 V r.m.s.

7.2 Environmental conditions

- Minimum temperature: - 65 °C
- Maximum temperature: 175 °C continuous. (except classes C and D at 125 °C).
- Corrosion resistance and fluid resistance: see EN 4644-001.

7.3 Mechanical conditions

Mechanical endurance: 500 mating and unmating cycles for contacts; 100 mating and unmating cycles for locking mechanisms.

7.4 Housing electrical continuity

See Table 3.

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Table 3

Classes	Maximum resistance m Ω
A, B, D, E, F	2,5
C	15

7.5 Shielding effectiveness

See EN 4644-001.

8 Product standards

See Table 4.

Table 4

Product standard	Class	Disconnect application	Rack and panel application	Description
EN 4644-003	Not applicable	Not applicable	Not applicable	Rectangular inserts
EN 4644-011	A, C, E	X	—	Plug size 1
EN 4644-012	A, C, E	X	—	Receptacle size 1
EN 4644-013	B, F	X	—	Plug size 1 with ground block without mounting holes
EN 4644-014	B, F	X	—	Receptacle size 1 with ground block
EN 4644-021	A, C, E	X	—	Plug size 2 without mounting holes
EN 4644-022	A, C, E	X	—	Plug size 2 with mounting holes
EN 4644-023	B, F	X	—	Plug size 2 with ground blocks
EN 4644-024	A, C, E	X	—	Receptacle size 2
EN 4644-025	A, C, E	X	—	Receptacle size 2 with flange
EN 4644-026	B, F	X	—	Receptacle size 2 with ground block
EN 4644-124	A, C, D	—	X	Plug size 2
EN 4644-125	A, C, D	—	X	Receptacle size 2
EN 4644-126	A, C, D	—	X	Receptacle size 2 with float mount
EN 4644-131	A, C, D	—	X	Plug size 3
EN 4644-133	A, C, D	—	X	Receptacle size 3
EN 4644-134	A, C, D	—	X	Plug size 3 fix mount
EN 4644-135	A, C, D	—	X	Receptacle size 3 fix mount
EN 4644-136	A, C, D	—	X	Receptacle size 3 with float mount
EN 4644-141	C, D	X (with 2 size 2 receptacle)	X	Plug size 4
EN 4644-142	C, D	—	X	Receptacle size 4
EN 4644-144	A, C, D	—	X	Plug size 4
EN 4644-145	A, C, D	—	X	Receptacle size 4
EN 4644-201	Not applicable	Not applicable	Not applicable	Locking and polarizing system for housing size 2

EN 4644-002:2016 (E)

EN 4644-202	Not applicable	Not applicable	Not applicable	Polarizing hardware
EN 4644-203	Not applicable	Not applicable	Not applicable	Dust caps
EN 4644-204	—	Not applicable	Not applicable	Tools
EN 4644-301	Not applicable	Not applicable	Not applicable	Cable outlet
TR 4654-003	—	Not applicable	Not applicable	Four gang connector –right angle PC tail contacts.

9 Polarization**9.1 Polarization for size 1 connectors****9.1.1 Polarization for plug connector (mating side shown)**

Polarizing positions described apply when holding the connector as shown in Figure 1.

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