



SLOVENSKI STANDARD

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Nadomešča:

SIST EN 3645-002:2009

Aeronavtika - Konektorji, električni, okrogli, zaščiteni kontakt, hitra spojka z navojem, stalna delovna temperatura med 175 °C in 200 °C - 002. del: Specifikacija lastnosti in razporeditev kontaktov

Aerospace series - Connectors, electrical, circular, scoop-proof, triple start threaded coupling, operating temperature 175 °C or 200 °C continuous - Part 002: Specification of performance and contact arrangements

Luft- und Raumfahrt - Elektrische Rundsteckverbinder, kontaktgeschützt, Drei-gangige Gewinde-Schnelkupplung, Betriebstemperatur 175 °C oder 200 °C konstant - Teil 002: Leistungsdaten und Kontaktanordnungen

Série aérospatiale - Connecteurs électriques circulaires, à contacts protégés, à accouplement par filetage, à pas rapide à trois filets, température d'utilisation 175 °C ou 200 °C continu - Partie 002: Spécification de performances

Ta slovenski standard je istoveten z: EN 3645-002:2015

ICS:

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 - Connectors, electrical, circular, scoop-proof, triple start threaded coupling, operating temperature 175 °C or 200 °C continuous - Part 002: Specification of performance and contact arrangements

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

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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.

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

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Foreword

This document (EN 3645-002:2015) 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 December 2015, and conflicting national standards shall be withdrawn at the latest by December 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.

This document supersedes EN 3645-002:2007.

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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Introduction

This family of connectors is derived from MIL-DTL-38999/30C series III, with which it is intermateable and interchangeable.

1 Scope

This European Standard defines the performances and contact arrangements for threaded ring coupling circular connectors, fire-resistant or non fire-resistant, intended for use in a temperature range from – 65 °C to 175 °C or 200 °C continuous.

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 2591-209, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 209: Current temperature derating*

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

EN 3155-008, *Aerospace series — Electrical contacts used in elements of connection — Part 008: Contacts, electrical, male, type A, crimp, class S — Product standard*

EN 3155-009, *Aerospace series — Electrical contacts used in elements of connection — Part 009: Contacts, electrical, female, type A, crimp, class S — Product standard*

EN 3155-010, *Aerospace series — Electrical contacts used in elements of connection — Part 010: Contacts, electrical, triaxial, size 8, male, type D, crimp, class R — Product standard*¹⁾

EN 3155-011, *Aerospace series — Electrical contacts used in elements of connection — Part 011: Contacts, electrical, triaxial, size 8, female, type D, crimp, class R — Product standard*¹⁾

EN 3155-012, *Aerospace series — Electrical contacts used in elements of connection — Part 012: Contacts, electrical, triaxial, size 8, male, type D, solder, class R — Product standard*

EN 3155-013, *Aerospace series — Electrical contacts used in elements of connection — Part 013: Contacts, electrical, triaxial, size 8, female, type D, solder, class R — Product standard*

EN 3155-024, *Aerospace series — Electrical contacts used in elements of connection — Part 024: Contacts, electrical, triaxial, size 8, male, type D, crimp, class S — Product standard*

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

EN 3155-025, *Aerospace series — Electrical contacts used in elements of connection — Part 025: Contacts, electrical, triaxial, size 8, female, type D, crimp, class S — Product standard*

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

EN 3645 (all parts), *Aerospace series — Connectors, electrical, circular, scoop-proof, triple start threaded coupling, operating temperature 175 °C or 200 °C continuous*

EN 3660-002, *Aerospace series — Cable outlet accessories for circular and rectangular electrical and optical connectors — Part 002: Index of product standards*

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

MIL-DTL-38999/30C, *Connectors, electrical, circular, threaded, plug, lanyard release, fail-safe, removable crimp contacts, sockets, series III, metric* ²⁾

AS39029/106B, *Contacts, electrical connector, socket, crimp-removable (for MIL-DTL-38999 series I, III and IV and MIL-DTL-55302 and AS29600 series A connectors)* ³⁾

AS39029/107B, *Contacts, electrical connector, pin, crimp-removable (for MIL-DTL-38999 series I, III and IV, MIL-DTL-55302 and AS29600 series A connectors)* ³⁾

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 3645-001 apply.

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4 Description and codification of class

See Table 1.

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

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

Table 1

Model	Description
Connector	W Receptacles and plugs, cadmium-plated aluminium alloy, olive drab — 500 h salt spray — Plug with grounding spring — Crimp, removable contacts — Maximum operating temperature 175 °C continuous
	J Receptacles and plugs, cadmium-plated composite, olive drab — 2 000 h salt spray — Plug with grounding spring — Crimp, removable contacts — 1 500 matings — Maximum operating temperature 175 °C continuous
	Z Receptacles and plugs, zinc-nickel plated aluminium alloy, non reflective black — 500 h salt spray — Plug with grounding spring — Crimp, removable contacts — Maximum operating temperature 175 °C continuous
	K Receptacles and plugs, passivated stainless steel — 500 h salt spray — Plug with grounding spring — Fire-resistant — Crimp, removable contacts — Maximum operating temperature 200 °C continuous
	F Receptacles and plugs, nickel-plated aluminium alloy — 48 h salt spray — Plug with grounding spring — Crimp, removable contacts — Maximum operating temperature 200 °C continuous
	M Receptacles and plugs, nickel-plated composite — 2 000 h salt spray — Plug with grounding spring — Crimp, removable contacts — 1 500 matings — Maximum operating temperature 200 °C continuous
	Y Hermetic receptacle, passivated stainless steel — Solder contacts — Maximum operating temperature 200 °C continuous
	T Receptacles and plugs, nickel fluorocarbon polymer plated aluminium alloy, non reflective — 500 h salt spray — Plug with grounding spring — Crimp, removable contacts — Maximum operating temperature 175 °C continuous
Protective cover	K Protective cover for plug in passivated corrosion resisting steel — Maximum operating temperature 200 °C continuous
	F Protective cover for receptacle or plug in nickel-plated aluminium alloy — Maximum operating temperature 200 °C continuous
	Z Protective cover for receptacle or plug, zinc-nickel plated aluminium alloy, non-reflective black — Maximum operating temperature 175 °C continuous
	W Protective cover for receptacle or plug in olive-green cadmium-plated aluminium alloy — Maximum operating temperature 175 °C continuous
	T Protective cover for receptacle or plug in nickel fluorocarbon polymer plated aluminium alloy, non reflective — Maximum operating temperature 175 °C continuous
Dummy receptacle	K Dummy receptacle in passivated stainless steel — Maximum operating temperature 200 °C continuous
	F Dummy receptacle in nickel-plated aluminium alloy — Maximum operating temperature 200 °C continuous
	Z Dummy receptacle, zinc-nickel plated aluminium alloy, non-reflective black — Maximum operating temperature 175 °C continuous
	W Dummy receptacle in olive-green cadmium-plated aluminium alloy — Maximum operating temperature 175 °C continuous
	T Dummy receptacle in nickel fluorocarbon polymer plated aluminium alloy, non reflective — Maximum operating temperature 175 °C continuous

5 Operating conditions

5.1 Combinations of plugs and receptacles

Table 2 shows the combinations marked by (X) which achieve the characteristics specified for each model.

For other combinations, the characteristics of the pair of connectors are those of the component with the lowest performance.

Other combinations may be used subject to the approval of the Design Authority.

Table 2

Receptacle model	Plug model						
	W	F	J	M	K	Z	T
W	X	—	X	—	—	X	—
F	—	X	—	X	—	—	—
J	X	—	X	—	—	—	—
M	—	X	—	X	—	—	—
Y	—	—	—	X	X	—	—
K	—	—	—	—	X	—	—
Z	X	—	—	—	X	X	—
T	—	—	—	—	—	—	X

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5.2 Combinations of protective covers and connectors

See Table 3.

Table 3

Flight cap for receptacle	Receptacle model	Dummy receptacle Flight cap for plug	Plug model
W	J	W	J
	W		W
	Z		Z
F	M	F	M
	F		F
K	Y	K	K
	K		
Z	Z	Z	Z
	W		W
T	T	T	T

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5.3 Permissible cables

The sealing performance of these connectors is achieved with the cables of dimensions given in Table 4, using the accessories wiring tools specified.

Table 4

Dimensions in millimetres

Contact size	Outer diameters of cables	
	min.	max.
22	0,75	1,37
20	1,01	2,11
16	1,65	2,77
12	2,47	3,61
10	3,42	5,21
8	a	a

^a The cables for size 8 contacts are specified in the contact product standard.

NOTE The use of cables exceeding the maximum diameter indicated is prohibited. Cables smaller than the minimum diameter may be used, subject to a concession, provided that the requirements of EN 3197 are observed.

5.4 Operating characteristics

5.4.1 Electrical conditions

5.4.1.1 Withstand voltage

See Table 5.

Table 5

Pressure	Rating M		Rating N		Rating I		Rating II	
	Mated	Unmated	Mated	Unmated	Mated	Unmated	Mated	Unmated
	V_{rms}	V_{rms}	V_{rms}	V_{rms}	V_{rms}	V_{rms}	V_{rms}	V_{rms}
Sea level	1 300	1 300	1 000	1 000	1 800	1 800	2 300	2 300
12,1 kPa (15 000 m)	800	550	600	400	1 000	600	1 000	800
4,7 kPa (21 000 m)	800	350	600	260	1 000	400	1 000	500
1,1 kPa (30 000 m)	800	200	600	200	1 000	200	1 000	200

5.4.1.2 Insulation resistance

At ambient temperature the insulation resistance shall be $\geq 5\,000\text{ M}\Omega$.

5.4.1.3 Maximum permissible current

The maximum current is shown in Table 6.

The heating caused by passage of the current shall not cause the maximum temperature to be exceeded.

Test EN 2591-209 shall be taken into account.

Table 6 — Test current in the contacts for hermetic connectors as a function of the cables

Size		Cable size		Current A hermetic connector
Contact	Barrel	ASD code	AWG ^a code	
22	22	004	22	3
		002	24	3
		001	26	2
20	20	006	20	5
		004	22	5
		002	24	3
16	16	012	16	10
		010	18	10
		006	20	7,5
12	12	030	12	17
		020	14	10
		050	10	—
10	10	030	12	—

^a AWG = American Wire Gage.

5.4.1.4 Housing electrical continuity

See Table 7.

Table 7

Model	Maximum resistance mΩ
F	1
W	2,5
Model Y with plug Models F, W	10
J and M	3
K	10
Z	2,5
T	2,5