
Aeronavtika - Konektorji, električni, okrogli, priključeni z navojnim obročkom, odporni ali neodporni proti ognju, s stalno delovno temperaturo med –65 °C in 175 °C, stalno 200 °C, najvišjo 260 °C - 002. del: Specifikacija lastnosti in razporeditev kontaktov

Aerospace series - Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures - 65 °C to 175 °C continuous, 200 °C continuous, 260 °C peak - Part 002: Specification of performance and contact arrangements

SIST EN 2997-002:2023

Luft- und Raumfahrt - Elektrische Rundsteckverbinder mit Schraubkupplung, feuerbeständig oder nicht feuerbeständig, Betriebstemperaturen -65 °C bis 175 °C konstant, 200 °C konstant, 260 °C Spitze - Teil 002: Leistungsdaten und Kontaktanordnungen

Série aérospatiale - Connecteurs électriques circulaires à accouplement par bague fileté, résistant au feu ou non, températures d'utilisation - 65 °C à 175 °C continu, 200 °C continu, 260 °C en pointe - Partie 002 : Spécification de performances et d'arrangements des contacts

Ta slovenski standard je istoveten z: EN 2997-002:2022

ICS:

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|-----------|--|--|
| 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
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 2997-002

December 2022

ICS 49.060

Supersedes EN 2997-002:2016

English Version

**Aerospace series - Connectors, electrical, circular, coupled
by threaded ring, fire-resistant or non fire-resistant,
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°C konstant, 200 °C konstant, 260 °C Spitze - Teil 002:
Leistungsdaten und Kontaktanordnungen

This European Standard was approved by CEN on 24 February 2020.

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European foreword

This document (EN 2997-002:2022) 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, 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 Jun 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document will supersede EN 2997-002:2016.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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SIST EN 2997-002:2023

<https://standards.iteh.ai/catalog/standards/sist/8d31fc99-b940-4d8b-9676-179ac14b667c/sist-en-2997-002-2023>

EN 2997-002:2022 (E)

Introduction

This family of connectors is derived from MIL-DTL-83723 series III, type T with which it is intermateable.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 2997-002:2023

<https://standards.iteh.ai/catalog/standards/sist/8d31fc99-b940-4d8b-9676-179ac14b667c/sist-en-2997-002-2023>

1 Scope

This document specifies the performance and contact arrangements of circular electrical connectors, coupled by threaded ring. It also lists the product standards and models available for selection in this series.

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 2591-202, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 202: Contact resistance at rated current*

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

EN 2997-001, *Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures -65 °C to 175 °C continuous, 200 °C continuous, 260 °C peak — Part 001: Technical specification*

EN 2997-003, *Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures -65 °C to 175 °C continuous, 200 °C continuous, 260 °C peak — Part 003: Square flange receptacle — Product standard*

EN 2997-004, *Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures -65 °C to 175 °C continuous, 200 °C continuous, 260 °C peak — Part 004: Jam-nut mounted receptacle — Product standard*

EN 2997-005, *Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures -65 °C to 175 °C continuous, 200 °C continuous, 260 °C peak — Part 005: Hermetic square flange receptacle — Product standard*

EN 2997-006, *Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures -65 °C to 175 °C continuous, 200 °C continuous, 260 °C peak — Part 006: Hermetic jam-nut mounted receptacle — Product standard*

EN 2997-007, *Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures -65 °C to 175 °C continuous, 200 °C continuous, 260 °C peak — Part 007: Hermetic receptacle with round flange attached by welding or brazing — Product standard*

EN 2997-008, *Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures -65 °C to 175 °C continuous, 200 °C continuous, 260 °C peak — Part 008: Plug — Product standard*

EN 2997-009, *Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures -65 °C to 175 °C continuous, 200 °C continuous, 260 °C peak — Part 009: Protective cover for receptacle — Product standard*

EN 2997-010, *Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures -65 °C to 175 °C continuous, 200 °C continuous, 260 °C peak — Part 010: Protective cover for plug — Product standard*

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EN 2997-011, Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures $-65\text{ }^{\circ}\text{C}$ to $175\text{ }^{\circ}\text{C}$ continuous, $200\text{ }^{\circ}\text{C}$ continuous, $260\text{ }^{\circ}\text{C}$ peak — Part 011: Dummy receptacle — Product standard

EN 2997-012, Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures $-65\text{ }^{\circ}\text{C}$ to $175\text{ }^{\circ}\text{C}$ continuous, $200\text{ }^{\circ}\text{C}$ continuous, $260\text{ }^{\circ}\text{C}$ peak — Part 012: Jam-nut for jam-nut receptacles — Product standard

EN 2997-013, Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures $-65\text{ }^{\circ}\text{C}$ to $175\text{ }^{\circ}\text{C}$ continuous, $200\text{ }^{\circ}\text{C}$ continuous, $260\text{ }^{\circ}\text{C}$ peak — Part 013: O-ring seal for jam-nut receptacles — Product standard

EN 2997-014, Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures $-65\text{ }^{\circ}\text{C}$ to $175\text{ }^{\circ}\text{C}$ continuous, $200\text{ }^{\circ}\text{C}$ continuous, $260\text{ }^{\circ}\text{C}$ peak — Part 014: Square flange receptacle with integrated accessory — Product standard

EN 2997-015, Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures $-65\text{ }^{\circ}\text{C}$ to $175\text{ }^{\circ}\text{C}$ continuous, $200\text{ }^{\circ}\text{C}$ continuous, $260\text{ }^{\circ}\text{C}$ peak — Part 015: Jam-nut mounted receptacle with integrated accessory — Product standard

EN 2997-016, Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures $-65\text{ }^{\circ}\text{C}$ to $175\text{ }^{\circ}\text{C}$ continuous, $200\text{ }^{\circ}\text{C}$ continuous, $260\text{ }^{\circ}\text{C}$ peak — Part 016: Plug with integrated accessory — Product standard

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

EN 3155-004, Aerospace series — Electrical contacts used in elements of connection — Part 004: Contacts, electrical, male, type A, crimp, class T — Product standard

EN 3155-005, Aerospace series — Electrical contacts used in elements of connection — Part 005: Contacts, electrical, female, type A, crimp, class T — Product standard

EN 3155-018, Aerospace series — Electrical contacts used in elements of connection — Part 018: Contacts, electrical, male, type A, crimp, class S — Product standard

EN 3155-019, Aerospace series — Electrical contacts used in elements of connection — Part 019: Contacts, electrical, female, type A, crimp, class S — Product standard

EN 3155-080, Aerospace series — Electrical contacts used in elements of connection — Part 080: Contacts size 22 for EN 2997, electrical, male, type A, crimp, class T — Product standard

EN 3155-081, Aerospace series — Electrical contacts used in elements of connection — Part 081: Contacts size 22 for EN 2997, electrical, female, type A, crimp, class T — Product standard

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 2997-001 apply.

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

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

4 Model description and codification of models

See Table 1.

Table 1 — Model description

| Class | Model description |
|-------------------|--|
| Connectors | |
| W | Sealed plug with housing (shell) in olive-green cadmium-plated aluminium alloy, conductive finish, 500 h resistance to salt mist, crimp contacts, maximum operating temperature 175 °C continuous |
| WS | Sealed plug and receptacle with housing (shell) in olive-green cadmium-plated aluminium alloy, conductive finish, 500 h resistance to salt mist, crimp contacts, plug with grounding-spring-system, maximum operating temperature 175 °C continuous |
| K | Sealed plug with housing (shell) in passivated stainless steel, 500 h resistance to salt mist, crimp contacts, fire-resistant, maximum operating temperature 200 °C continuous |
| KV | Sealed plug with housing (shell) in passivated stainless steel, 500 h resistance to salt mist, crimp contacts, fire-resistant, high vibrations, maximum operating temperature 260 °C peak |
| SV | Sealed plug and receptacle with housing (shell) in passivated stainless steel, 500 h resistance to salt mist, crimp contacts, fire-resistant, high vibrations, plug with grounding-spring-system, maximum operating temperature 260 °C peak |
| KF | Sealed plug with housing (shell) in passivated stainless steel, 500 h resistance to salt mist, crimp contacts, fire-resistant (including fire immersion), high vibrations, maximum operating temperature 260 °C peak |
| SF | Sealed plug and receptacle with housing (shell) in passivated stainless steel, 500 h resistance to salt mist, crimp contacts, fire-resistant (including fire immersion), high vibrations, plug with grounding-spring-system, maximum operating temperature 260 °C peak |
| R | Sealed plug with housing (shell) in nickel-plated aluminium alloy, 48 h resistance to salt mist, crimp contacts, maximum operating temperature 200 °C continuous |
| RS | Sealed plug and receptacle with housing (shell) in nickel-plated aluminium alloy, 48 h resistance to salt mist, crimp contacts, plug with grounding-spring-system, maximum operating temperature 200 °C continuous |
| S | Sealed plug and receptacle with housing (shell) in passivated stainless steel, 500 h resistance to salt mist, crimp contacts, fire-resistant, plug with grounding-spring-system, maximum operating temperature 200 °C continuous |

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| Class | Model description |
|--------------------------|--|
| Y | Hermetic receptacle with housing (shell) in passivated stainless steel, 500 h resistance to salt mist, solder contacts, maximum operating temperature 200 °C continuous |
| KE | Sealed plug with housing (shell) in passivated stainless steel, 500 h resistance to salt mist, crimp contacts, fire-resistant, maximum operating temperature 260 °C peak |
| SE | Sealed plug and receptacle with housing (shell) in passivated stainless steel, 500 h resistance to salt mist, crimp contacts, fire-resistant, plug with grounding-spring-system, maximum operating temperature 260 °C peak |
| YE | Hermetic receptacle with housing (shell) in passivated stainless steel, 500 h resistance to salt mist, solder contacts, maximum operating temperature 260 °C peak |
| Protective covers | |
| K | Protective cover for plug in passivated corrosion resisting steel, 500 h resistance to salt mist, maximum operating temperature 200 °C continuous |
| R | Protective cover for receptacle or plug in nickel-plated aluminium alloy, 48 h resistance to salt mist, maximum operating temperature 200 °C continuous |
| W | Protective cover for receptacle or plug in olive-green cadmium-plated aluminium alloy, 500 h resistance to salt mist, maximum operating temperature 175 °C continuous |
| KE | Protective cover for receptacle or plug in passivated corrosion resisting steel, 500 h resistance to salt mist, maximum operating temperature 260 °C peak |
| Dummy receptacles | |
| K | Dummy receptacle in passivated stainless steel, 500 h resistance to salt mist, maximum operating temperature 200 °C continuous |
| R | Dummy receptacle in nickel-plated aluminium alloy, 48 h resistance to salt mist, maximum operating temperature 200 °C continuous |
| W | Dummy receptacle in olive-green cadmium-plated aluminium alloy, 500 h resistance to salt mist, maximum operating temperature 175 °C continuous |
| KE | Dummy receptacle in passivated corrosion resisting steel, 500 h resistance to salt mist, maximum operating temperature 260 °C peak |

5 Operating conditions

5.1 General

Table 2 and Table 3 show:

- combinations marked by “yes” achieve the characteristics specified for the two classes;
- combinations marked by “yes*” achieve the lowest characteristics of the two classes;
- all other combinations are under the responsibility of the user.

5.2 Combinations of plugs and receptacles

See Table 2.

Table 2 — Combinations of plugs and receptacles

| Receptacle class | Plug class | | | | | | | | | | | |
|------------------|------------|-----|------|-----|-----|------|------|------|------|------|------|------|
| | W | WS | K | R | RS | S | KE | KV | KF | SE | SV | SF |
| WS | yes | yes | — | — | — | — | — | — | — | — | — | — |
| RS | — | — | — | yes | yes | — | — | — | — | — | — | — |
| S | — | — | yes | — | — | yes | yes* | yes* | yes* | yes* | yes* | yes* |
| Y | — | — | yes | — | — | yes | yes* | yes* | yes* | yes* | yes* | yes* |
| SE | — | — | yes* | — | — | yes* | yes | yes | yes* | yes | yes | yes* |
| YE | — | — | yes* | — | — | yes* | yes | yes | yes* | yes | yes | yes* |
| SV | — | — | yes* | — | — | yes* | yes* | yes | yes* | yes* | yes | yes* |
| SF | — | — | yes* | — | — | yes* | yes* | yes* | yes | yes* | yes* | yes |

5.3 Combinations of protective covers and connectors

See Table 3.

Table 3 — Combinations of protective covers and connectors

| Protective cover class | Plug class | | | | | | | | | | | | Receptacle class | | | | | | | |
|------------------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------------|-----|-----|-----|-----|-----|-----|-----|
| | W | WS | K | R | RS | S | KE | KV | KF | SE | SV | SF | WS | RS | S | Y | SE | SV | SF | YE |
| R | — | — | — | yes | yes | — | — | — | — | — | — | — | — | yes | — | — | — | — | — | — |
| W | yes | yes | — | — | — | — | — | — | — | — | — | — | yes | — | — | — | — | — | — | — |
| K | — | — | yes | — | — | yes | — | — | — | — | — | — | — | — | yes | yes | — | — | — | — |
| KE | — | — | — | — | — | — | yes | yes | yes | yes | yes | yes | — | — | yes | yes | yes | yes | yes | yes |

5.4 Permissible cables

The performance of these connectors is achieved with the cables of the dimensions given in Table 4 and using the cable outlets and wiring tools specified. 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.

Table 4 — Permissible cables

Dimensions in millimetres

| Contact size | Outer diameter of cables | |
|--------------|--------------------------|------|
| | min. | max. |
| 22 | 0,85 | 1,68 |
| 20 | 0,85 | 2,11 |
| 16 | 1,22 | 2,77 |
| 12 | 1,90 | 3,61 |

EN 2997-002:2022 (E)**5.5 Operating characteristics****5.5.1 Electrical conditions**

- for operating temperature including self-heating from electrical operation see EN 2591-209;
- for rated test current refer to the relevant contact standard for removable contacts;
- for solder contacts refer to EN 2997-001 test requirements listed against test EN 2591-202 requirements;
- insulation resistance at ambient temperature: 5 000 MΩ;
- withstand voltage at sea level: 1 500 V r.m.s;
- withstand voltage from 15 000 m to 30 000 m: 1 000 V r.m.s (connector mated).

5.5.2 Climatic conditions

- operating temperatures:
 - minimum temperature: –65 °C;
 - maximum temperature: see Table 1.

Furthermore, the connector operating temperature shall be limited to the maximum operating temperature indicated in the product standards for contacts:

- corrosion resistance and fluid resistance: see EN 2997-001;
- salt mist resistance: see Table 1 and EN 2997-001.

5.5.3 Mechanical conditions

Mechanical endurance, see EN 2997-001: 500 mating and unmating operations;
250 mating and unmating operations for class R, RS, W and WS.

6 Connector type codes

See Table 5 for codes.

For spare parts not listed in this specification, refer to the relevant product standard.