SLOVENSKI STANDARD
SIST EN 4529-001:2009

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Aeronavtika - Elementi elektriļ nih in optiļ nih povezav - Tesnilni ļ epi - 001. del: Tehniļ na specifikacija

Aerospace series - Elements of electrical and optical connection - Sealing plugs - Part 001: Technical specification

Luft- und Raumfahrt - Elektrische und optische Verbindungselemente - Verschluss-Stopfen - Teil 001: Technische Lieferbedingungen

Série aérospatiale - Organes de connexion électrique et optique - Obturateur d'étanchéité - Partie 001 : Spécification technique

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ICS:

49.060	Letalska in vesoljska elektriļ na oprema in sistemi	Aerospace electric equipment and systems

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Aerospace series - Elements of electrical and optical connection - Sealing plugs - Part 001: Technical specification

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This European Standard was approved by CEN on 20 February 2006.

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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 Central Secretariat has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This European Standard (EN 4529-001:2006) 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of an identical text or by endorsement, at the latest by November 2006, and conflicting national standards shall be withdrawn at the latest by November 2006.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.

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1 Scope

This standard specifies:

— the electrical, mechanical, environmental and dimensional characteristics of sealing plugs used in elements of electrical and optical connection;

— the conditions for qualification, acceptance testing and quality assurance;

— the test programmes and groups.

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.

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection.*

EN 2591-100*, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 100: General.*

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

MIL-HDBK-454A, *General guidelines for electronic equipment.* 1)

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in EN 2591-100 and the following apply.

3.1
sealing plug
an accessory used to fill grommet cavities in an element of connection

4 Conditions of use

The sealing plug shall provide an environmental seal in unused cavities when used in elements of connection, throughout the temperature ranges specified below:

— class P: maximum operating temperature 125 °C;

— class R: maximum operating temperature 150 °C;

— class S: maximum operating temperature 200 °C;

— class T: maximum operating temperature 260 °C;

— class U: maximum operating temperature 350 °C.

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* And all parts quoted.

1) Published by: Department of Defense (DOD), The Pentagon, Washington D.C. 20301, USA.

5 Design and description

Refer to the relevant product standard.

6 Dimensions and mass

The dimensions of the sealing plugs and their mass shall be as defined in the product standard.

7 Operation

Tools for installing and extracting the sealing plugs shall be defined in the product standard.

8 Tests

The tests of EN 2591-100, applicable in the context of this standard as well as the details necessary for implementing them and for inspecting sealing plug characteristics are given in Table 1.

All the tests shall be carried out without elements of connection unless otherwise specified in Table 1.

Table 1 — List of tests

EN 2591-	Test	Details
101	Visual examination	Initial examination: Details to be examined: — identification of materials in accordance with the product standard — identification — marking — surface roughness
102	Examination of dimensions and mass	In accordance with the product standard
201	Contact resistance - low level	Not applicable
202	Contact resistance at rated current	Not applicable
203	Electrical continuity at microvolt level	Not applicable
204	Discontinuity of contacts in the microsecond range	Not applicable
205	Housing (shell) electrical continuity	Not applicable
206	Measurement of insulation resistance	The insulation resistance shall be 100 MΩ min at 500 V d.c. using flat probes positioned across the smallest diameter.
207	Voltage proof test	Not applicable
208	Temperature rise due to rated current	Not applicable
209	Current temperature derating	Not applicable
210	Electrical overload	Not applicable

continued

Table 1 *(continued)*

EN 2591-	Test	Details
211	Capacitance	Not applicable
212	Surface transfer impedance	Not applicable
213	Shielding effectiveness from 100 MHz to 1 GHz	Not applicable
214	Lightning strike, current and voltage pulse	Not applicable
216	Engagement of contacts	Not applicable
220	Contact/conductor joint ageing by current and temperature cycling	Not applicable
301	Endurance at temperature	Conduct within element of connection. Method B but without mechanical load or electrical monitoring, temperature and duration in accordance with the product standard.
302	Climatic sequence	Not applicable
303	Cold/low pressure and damp heat	Not applicable
304	Damp heat steady state	Not applicable
305	Rapid change of temperature	Requirement: See product standard.
306	Mould growth	Requirement: See product standard. Nil growth No prior washing
307	Salt mist	Not applicable
308	Sand and dust	Not applicable
309	Dry heat	Not applicable
310	Cold	Not applicable
311	Low air pressure	Not applicable
312	Air leakage	Not applicable
313	Driving rain (artificial)	Not applicable
314	Immersion at low air pressure	Not applicable
315	Fluid resistance	See product standard.
316	Ozone resistance	Not applicable
317	Flammability	Applicable
318	Fire-resistance	Not applicable
319	Gastightness of solderless wrapped connections	Not applicable

continued

Table 1 *(continued)*

EN 2591-	Test	Details
320	Simulated solar radiation at ground level	Not applicable
321	Damp heat, cyclic test	Not applicable
322	Hermeticity	Not applicable
323	Thermal shock	Not applicable
324	Interfacial sealing	Not applicable
401	Acceleration, steady state	Not applicable
402	Shock	Not applicable
403	Sinusoidal and random vibration	Not applicable
404	Transverse load	Not applicable
405	Axial load	Not applicable
406	Mechanical endurance	Not applicable
407	Durability of contact retention system and seals	Not applicable
408	Mating and unmating forces	Not applicable
409	Contact retention in insert	Not applicable
410	Insert retention in housing (axial)	Not applicable
411	Insert retention in housing (torsional)	Not applicable
412	Contact insertion and extraction forces	Not applicable
413	Holding force of grounding spring system	Not applicable
414	Unmating of lanyard release connectors	Not applicable
415	Test probe damage (female contact)	Not applicable
416	Contact bending strength	Not applicable
417	Tensile strength (crimped connection)	Not applicable
418	Gauge insertion/extraction forces (female contacts)	Not applicable
419	Stability of male contacts in insert	Not applicable
420	Mechanical strength of rear accessories	Not applicable
421	Free fall	Not applicable
422	Locking wire hole strength	Not applicable
424	Stripping force, solderless wrapped connections	Not applicable
425	Unwrapping capability, solderless wrapped connections	Not applicable
501	Soft solderability	Not applicable
502	Restricted entry	Not applicable

continued