SLOVENSKI STANDARD
SIST EN 4531-101:2009

01-julij-2009

Aeronavtika - Konektorji, optiļ ni, okrogli, z enim ali veļ zatiļ i, priključļ eni z navojnim obroļ kom - Izravnani kontakti - 101. del: Optiļ ni kontakt za kabel EN 4641-100 -55 ÁC do 125 ÁC - Standard za proizvod

Aerospace series - Connectors, optical, circular, single and multipin, coupled by threaded ring - Flush contacts - Part 101: Optical contact for EN 4641-100 cable - 55 °C to 125 °C - Product standard

Luft- und Raumfahrt - Optische Rundsteckverbinder mit Schraubkupplung - Bündige Kontakte - Teil 101: Optischer Kontakt für Kabel nach EN 4641-100 - 55 °C bis 125 °C - Produktnorm

Série aérospatiale - Connecteurs optiques circulaires à accouplement par bague filetée - Contacts affleurants - Partie 101 : Contact optique pour cable EN 4641-100 – 55° C à 12 °C - Norme produit

Ta slovenski standard je istoveten z: **EN 4531-101:2007**

ICS:

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

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EUROPEAN STANDARD

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English Version

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

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Foreword

This document (EN 4531-101:2007) 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of an identical text or by endorsement, at the latest by December 2007, and conflicting national standards shall be withdrawn at the latest by December 2007.

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1 Scope

This standard defines the performance and dimensions of optical PC profiled contact for EN 4641-100 cable specification (62,5 µm/125 µm fibre and 1,8 mm diameter cable).

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.

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

EN 4531-001, *Aerospace series — Connectors, optical, circular, single and multipin, coupled by threaded ring — Flush contacts — Part 001: Technical specification.*

EN 4531-002, *Aerospace series — Connectors, optical, circular, single and multipin, coupled by threaded ring — Flush contacts — Part 002: Specification of performance and contact arrangements.*

EN 4533 (all parts), *Aerospace series — Fibre optic systems — Handbook.* [1)]

EN 4641-100, *Aerospace series — Cables, optical 125 µm diameter cladding — Part 100: Tight structure 62,5 µm - 125 µm GI fibre 1,8 mm outside diameter — Product standard.* [2)]

MIL-I-81969/8, *Installing and removal tools, connector electrical contact, types I and II, class 2, composition A.* [3)]

3 Termini dimensions

See Figure 1.

Dimensions and tolerances are in millimetres.

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* And all parts quoted in this standard.

1) Published as ASD Prestandard at the date of publication of this standard.

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

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

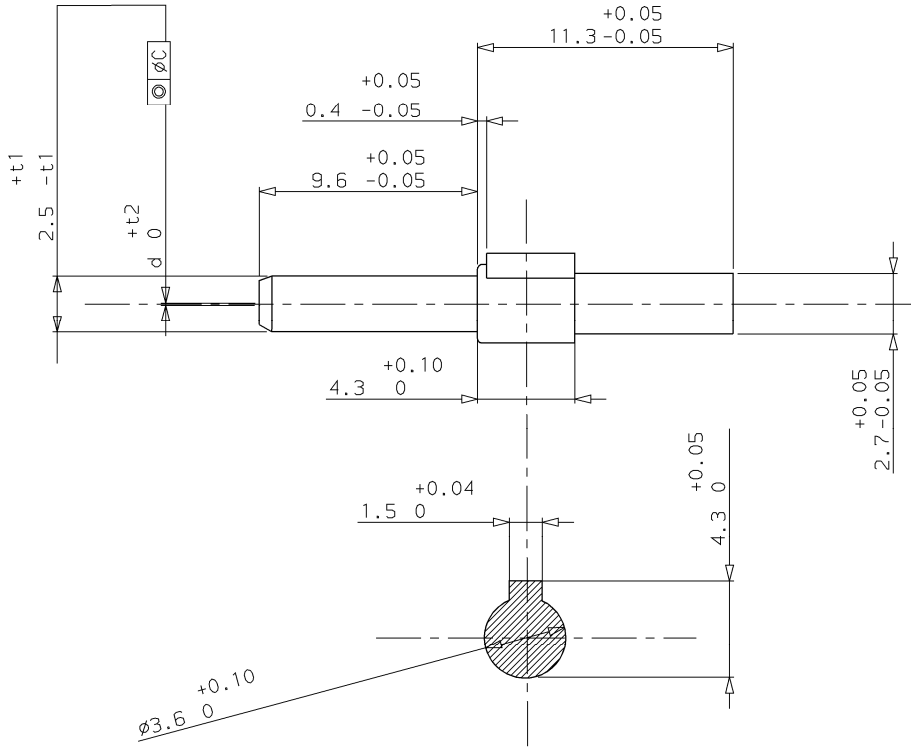


Figure 1

Dimensions of *t*1, *t*2, *c* and *d* of Figure 1 are detailed Table 1.

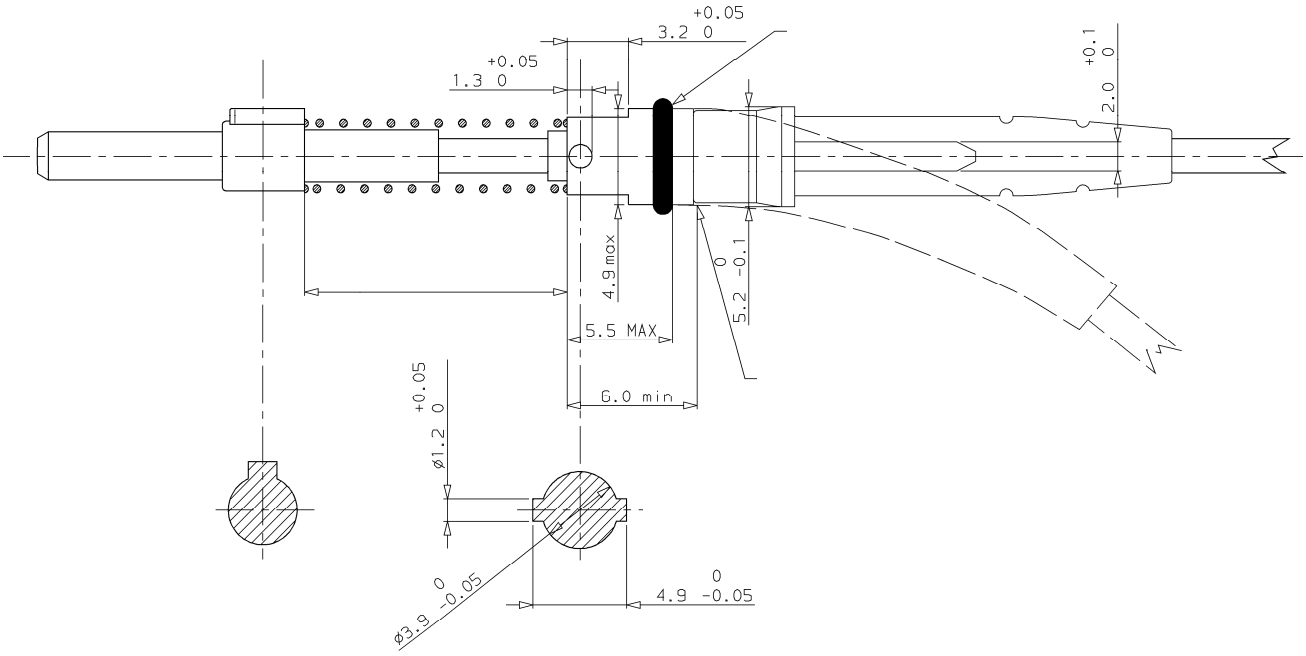
Table 1

EN 4531–	Cable	F.O. type	*c* µm	*d* µm	*t*1 µm	*t*2 µm
101	EN 4641-100	62,5/125	4	127	1,5	4

4 General dimensions of the optical termini

See Figure 2.

Dimensions and tolerances are in millimetres.



Key

1 O-ring
2 Length: 15 min.; Compression: 5 min.
3 Beginning of bending

Figure 2

Spring force when connector is mated:

Typical: 9 N (minimum 5 N, maximum 13 N)

Spring outer diameter shall be 3,95 mm maximum.

Maximum outer diameter of the O-ring when inserted in the connector insert: 5,05 mm

5 Technical specification

This component is qualified as part of a complete connector assembly when tested to the qualification requirements of EN 4531-001 and the applicable product standards.

6 Tests according to EN 2591-100

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 connector characteristics, are given in Table 2.

Environmental tests are specified in EN 4531-001.

These tests shall be carried out without backshell.

Table 2

EN 2591–	Designation of the test	Details
6301	Optical elements - Endurance at temperature	1 000 hours at 125 °C
302	Climatic sequence	Not applicable
304	Damp heat steady state	Temperature of 40 °C and 93 % of humidity
6305	Optical elements - Rapid change of temperature	10 cycles, $T_B = -65$ °C, $T_A = 125$ °C
309	Dry heat	Not applicable
310	Cold	Not applicable
311	Low air pressure	Not applicable
313	Driving rain (artificial)	Not applicable
6316	Optical elements - Ozone resistance	Not applicable
320	Simulated solar radiation at ground level	Not applicable
6401	Optical elements - Acceleration steady state	Not applicable
6405	Optical elements - Axial load	100 N maintained for 1 minute, 3 cycles.
6406	Optical elements - Mechanical endurance	500 mating/unmating cycles
407	Durability of contact retention system and seals (maintenance ageing)	Applicable
601	Optical elements - Insertion loss	0,7 dB max during and after tests
602	Optical elements - Variation of attenuation and optical discontinuity	Method A, IL maximum = 0,7 dB
604	Optical elements - Cleaning capability of optical face	Applicable
605	Optical elements - Return loss	RL maximum = – 21 dB
607	Optical elements - Immunity to ambient light coupling	Not applicable
609	Optical elements - Effectiveness of cable attachment - Cable cyclic flexing	100 cycles at a load of 40 N
610	Optical elements - Effectiveness of cable attachment - Cable pulling	Method B, 111 N tensile load, 1 minute, 3 pulls
611	Optical elements - Effectiveness of cable attachment - Cable torsion	100 cycles at a load of 40 N
612	Optical elements - Effectiveness of cable attachment - Cable axial compression	Compression force of 10 N for 2 minutes
613	Optical elements - Impact test	Severity: light
615	Optical elements - Connection integrity at temperature	Not applicable
617	Optical elements - Temperature cycling	$T_A = 125$ °C, $T_B = -65$ °C, 10 cycles