SLOVENSKI STANDARD
SIST EN 4640-001:2009

01-maj-2009

Aeronavtika - Konektorji, optiļ ni, pravokotni, s stojalom in ploġļ o, veļ kontaktni, s premerom kapice 1,25, s snemljivo centrirno puġo - 001. del: Tehniļ na specifikacija

Aerospace series - Connectors, optical, rectangular, rack and panel, multicontact, 1,25 diameter ferrule, with removable alignment sleeve holder - Part 001: Technical specification

Luft- und Raumfahrt - Optischer Rechtecksteckverbinder, Gehäuse, Einschub, Steckverbinder, Multipin, Ferrulendurchmesser 1,25 mm, demontierbarer Zentrierhülsenhalter - Teil 001: Technische Lieferbedingungen

Série aérospatiale - Connecteurs optiques, rectangulaires, à contacts multiples, rackables, férule diamètre 1,25, équipés d'un porte sleeve démontable - Partie 001: Spécification technique

Ta slovenski standard je istoveten z: **EN 4640-001:2009**

ICS:

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

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

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Foreword

This document (EN 4640-001:2009) 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of an identical text or by endorsement, at the latest by August 2009, and conflicting national standards shall be withdrawn at the latest by August 2009.

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Introduction

This family of fibre optic connectors is derived from ARINC Specification 600 connectors. It is suitable for use on aerospace onboard applications. It provides easy access for optical contact end face cleaning.

The optical contacts are capable of accepting single cable sizes up to a maximum of 2 mm outside diameter.

1 Scope

This standard specifies the general characteristics, the conditions for qualification, acceptance and quality assurance, as well as the test programs and groups for rectangular multipin fibre optic connectors.

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 3197, *Aerospace series — Installation of aircraft electrical and optical interconnection systems* [1]

EN 3909, *Aerospace series — Test fluids and test methods for electric components and sub-assemblies*

EN 4639-101, *Aerospace series — Connectors, optical, rectangular, modular, multicontact, 1,25 mm diameter ferrule, with removable alignment sleeve holder — Part 101: Optical contact for cable EN 4641-100 — Operating temperatures between −65 °C and 125 °C — Product standard*

EN 4640-002, *Aerospace series — Connectors, optical, rectangular, rack and panel, multicontact, 1,25 diameter ferrule, with removable alignment sleeve holder — Part 002: Specification of performance and contact arrangements*

EN 4640-003, *Aerospace series — Connectors, optical, rectangular, rack and panel, multicontact, 1,25 diameter ferrule, with removable alignment sleeve holder — Part 003: Plug optical connector — Product standard*

EN 4640-004, *Aerospace series — Connectors, optical, rectangular, rack and panel, multicontact, 1,25 diameter ferrule, with removable alignment sleeve holder — Part 004: Receptacle optical connector — Product standard*

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

ARINC Specification 600, *Air Transport Avionics Equipment Interfaces* [2]

MIL-I-81969/14, *Installing and removal tools, connector electrical contact, type III, class 2, composition B* [3]

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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 Published by: AERONAUTICAL RADIO, INC. 2551 Riva road, Annapolis, Maryland 21401-7435 USA.

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

3 Terms and definitions

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

4 Description

4.1 General

This document describes an optical connector insert to be installed in plug and receptacle housings.

Plug and receptacle housings conform to ARINC Specification 600.

The precise alignment of the optical contacts is accomplished by alignment sleeves held in a removable sleeve holder.

The plug connector contain male insert as specified in EN 4640-003.

The receptacles connector contain female insert as specified in EN 4640-004.

The female insert is composed of an insert and a removable sleeve holder as specified in EN 4640-004.

The sleeve holder is delivered with the female insert. It is considered as a part of the female insert (specific design per manufacturer).

The sleeve holder can be supplied separately only for repair purpose.

The optical contact is in accordance with EN 4639-101.

The connectors are keyed as specified in ARINC Specification 600.

Connector type designation as specified in ARINC Specification 600.

4.2 Receptacle

Receptacle description as specified in ARINC Specification 600.

4.3 Plug

Plug description as specified in ARINC Specification 600.

4.4 Materials and surface treatment

4.4.1 General

When dissimilar metals are in close contact, adequate protection against corrosion shall be used for the electromotive force of the cell not to exceed 0,25 V (see EN 3197).

4.4.2 Housings

The connector housing description as specified in ARINC Specification 600.

4.4.3 Optical contacts and alignment sleeves

The contacts shall be of suitable materials as specified in EN 4639-101.

The optical alignment sleeves shall be of suitable materials as specified in EN 4640-002.

The optical contacts are sprung-loaded. The spring force is defined in the product standard (EN 4639-101).

4.4.4 Metallic or non-metallic materials

The materials used for inserts, seals and grommets shall have a hardness and mechanical characteristics consistent with the required use.

5 Design

5.1 Housing

The connector housing design as specified in ARINC Specification 600.

5.2 Connector inserts

The connector insert carrying the optical contacts shall be in hard material and have a cross section and radii such that no cracks, flaking or breaks can occur in normal operation.

The mechanical contacts retention system shall be integrated in the connector insert.

Sealing of the rear face of the connector insert can be provided by a grommet adapted to the external diameter of the cable.

The design shall permit individual installation of the contacts without removal of the connector insert.

Fitting and removal of the contacts shall be from the rear. For ease of operation, tools as per MIL-I-81969/14-03 (P/N for size 16) may be used.

Contact position identification shall be permanent and contrasted on the rear face of the insert or grommet.

6 Definition drawings

6.1 General

The general dimensions and the masses of receptacles, plugs and protective covers are given in the product standards.

6.2 Receptacle

All housing dimensions are defined in ARINC Specification 600.

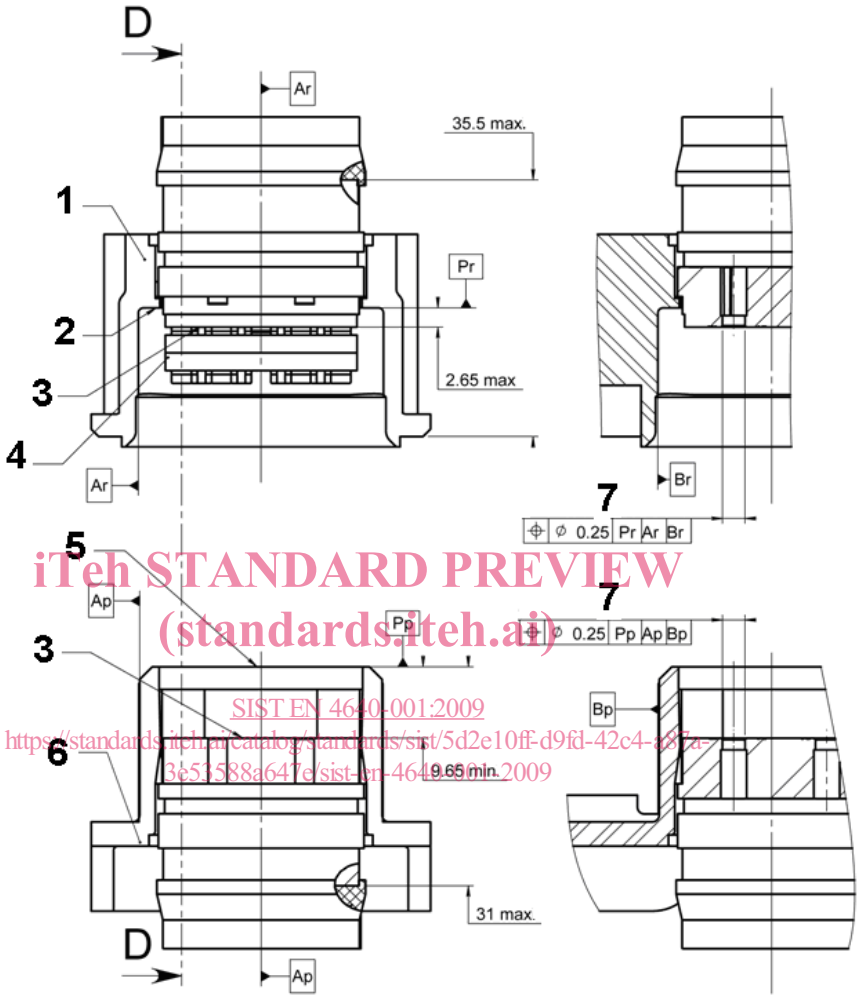
6.3 Plug

All housing dimensions are defined in ARINC Specification 600.

6.4 Connector inserts

6.4.1 Connector interface insert

See Figure 1.



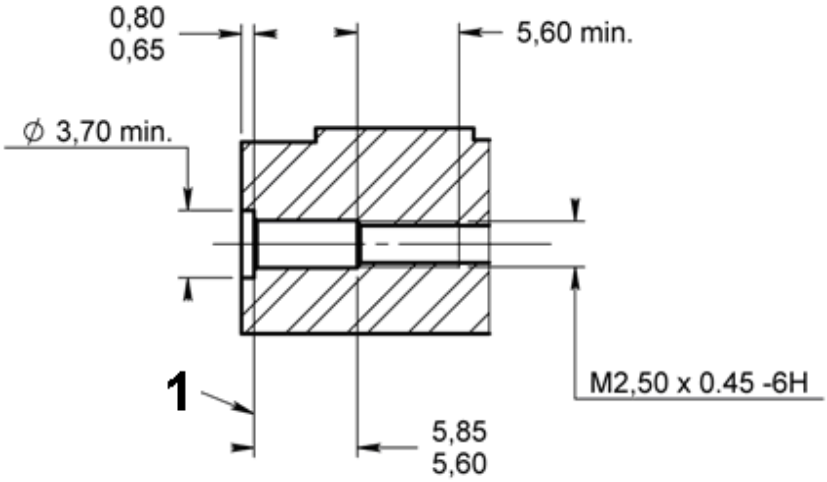
Key

1 Receptacle connector
2 Mechanical bottom of plug
3 Front face of the insert
4 Sleeve holder
5 Mechanical bottom of receptacle
6 Plug connector
7 ∅ Pin cavity position A

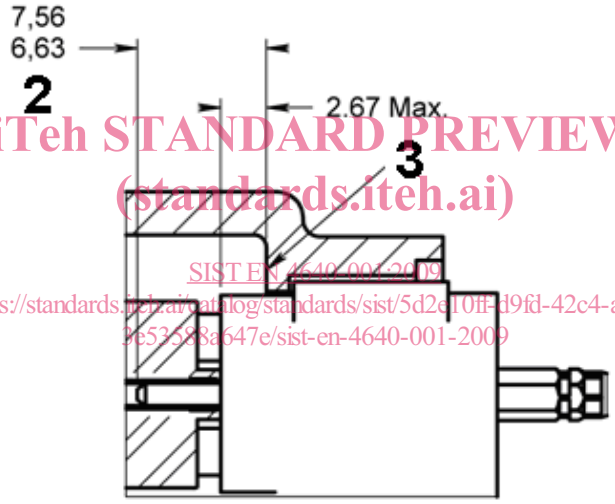
Figure 1

6.5 Mating dimensions

The mating dimensions receptacle (free position) are shown in Figure 2.



Sleeve-holder screw cavity
(Sleeve-holder not show)



Optical contact position

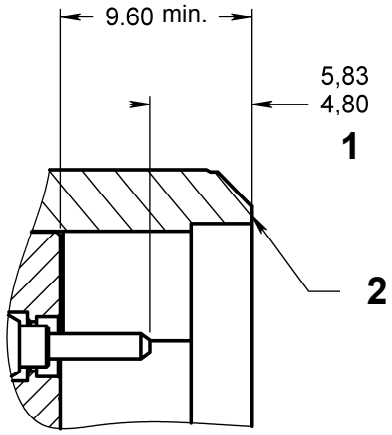
Key

1 Limit stop of the alignment sleeve holder screw
2 (unmated position)
3 Mechanical bottom of the receptacle

NOTE Other dimensions in accordance with ARINC Specification 600.

Figure 2

The mating dimensions of plug (free position) are shown in Figure 3.



Key

1 (unmated position)
2 Mechanical bottom of the plug

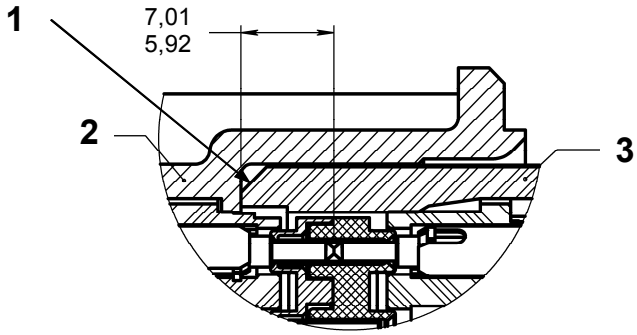
NOTE Other dimensions in accordance with ARINC Specification 600.

Figure 3

6.5.1 Receptacle with female insert and plug with male insert

The displacement of the optical contact in the connector is shown in Figure 4.

Dimensions and tolerances are in millimetres.



Mating position

Key

1 Mechanical bottom
2 Receptacle connector
3 Plug connector

Figure 4