SLOVENSKI STANDARD

SIST EN 4639-001:2008

01-marec-2008

Aeronavtika - Konektorji, optiļ ni, pravokotni, modularni, veļ kontaktni, premer kapice 1,25, s snemljivo centrirno puġo - 001. del: Tehniļ na specifikacija

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

Luft- und Raumfahrt - Optischer Rechtecksteckverbinder, modular, Mehrfachkontakt, Ferrulendurchmesser 1,25 mm, demontierbarer Zentrierhülsenhalter - Teil 001: Technische Lieferbedingungen

Série aérospatiale — Connecteurs optiques rectangulaires, modulaires multicontacts, férule 1,25, équipés d'un porte sleeve démontable — Partie 001 : Spécification technique

Ta slovenski standard je istoveten z: **EN 4639-001:2007**

ICS:

49.060

SIST EN 4639-001:2008 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 4639-001

December 2007

ICS 49.060

English Version

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COMITÉ EUROPÉEN DE NORMALISATION
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Ref. No. EN 4639-001:2007: E

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Foreword

This document (EN 4639-001:2007) 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of an identical text or by endorsement, at the latest by June 2008, and conflicting national standards shall be withdrawn at the latest by June 2008.

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Introduction

This family of fibre optic connectors is derived from EN 4644-001. 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 for electric components and sub-assemblies.*

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

EN 4644-001, *Aerospace series — Connector, electrical and optical, rectangular, modular, rectangular inserts — Operating temperature 175 °C continuous — Part 001: Technical specification.* 2)

EN 4644-002, *Aerospace series — Connector, electrical and optical, rectangular, modular, rectangular inserts — Operating temperature 175 °C continuous — Part 002: Specification of performance and contact arrangements.* 2)

EN 4644-003, *Aerospace series — Connector, electrical and optical, rectangular, modular, rectangular inserts — Operating temperature 175 °C continuous — Part 003: Rectangular inserts and insert extraction tool — Product standard.* 2)

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

3 Terms and definitions

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

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* And all parts quoted in this document.

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.

4 Description

4.1 General

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

Plug and receptacle housings conform to EN 4644-001.

There are two sizes of connector housings:

— Housing size 1 with 1 module cavity.

— Housing size 2 with 2 module cavities.

The connectors use rear removable optical contacts with a ferrule diameter of 1,25 mm.

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

The receptacles and plugs contain either male or female module. The female module is characterised by its ability to receive the removable sleeve holder.

The modules can be installed and removed from the shell by means of a tool as specified in EN 4644-003.

The modules are keyed to prevent mismatching ("A" module for connector housing cavity "A" and "B" module for connector housing cavity "B") as specified in EN 4644-001.

The connectors are keyed as specified in EN 4644-001.

Connector type designation as specified in EN 4644-001.

4.2 Receptacle

Receptacle description as specified EN 4644-001.

4.3 Plug

Plug description as specified EN 4644-001.

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 EN 4644-001.

4.4.3 Optical contacts and alignment sleeves

The contacts shall be of suitable materials as specified in the product standard.

The optical alignment sleeves shall be of suitable materials as specified in the product standard.

The optical contacts are spring-loaded. The spring force is defined in the product standard.

4.4.4 Metallic or non-metallic materials

The materials used for modules, 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 EN 4644-001.

5.2 Modules

The modules 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 contact module is mechanically held in the connector housing by retention clips, and removable with the use of an extraction tool.

The mechanical contacts retention system shall be integrated in the hard module.

The front face of the module shall be such that sealing is ensured when the connectors are coupled. The interfacial seal of the module of the male contacts shall be permanently fastened on the hard module.

Sealing of the rear face of the module is 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 module.

Installation and removal of the contacts shall be from the rear. For ease of operation, tools as per MIL-I-81969/14-03 standard (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 EN 4644-001.

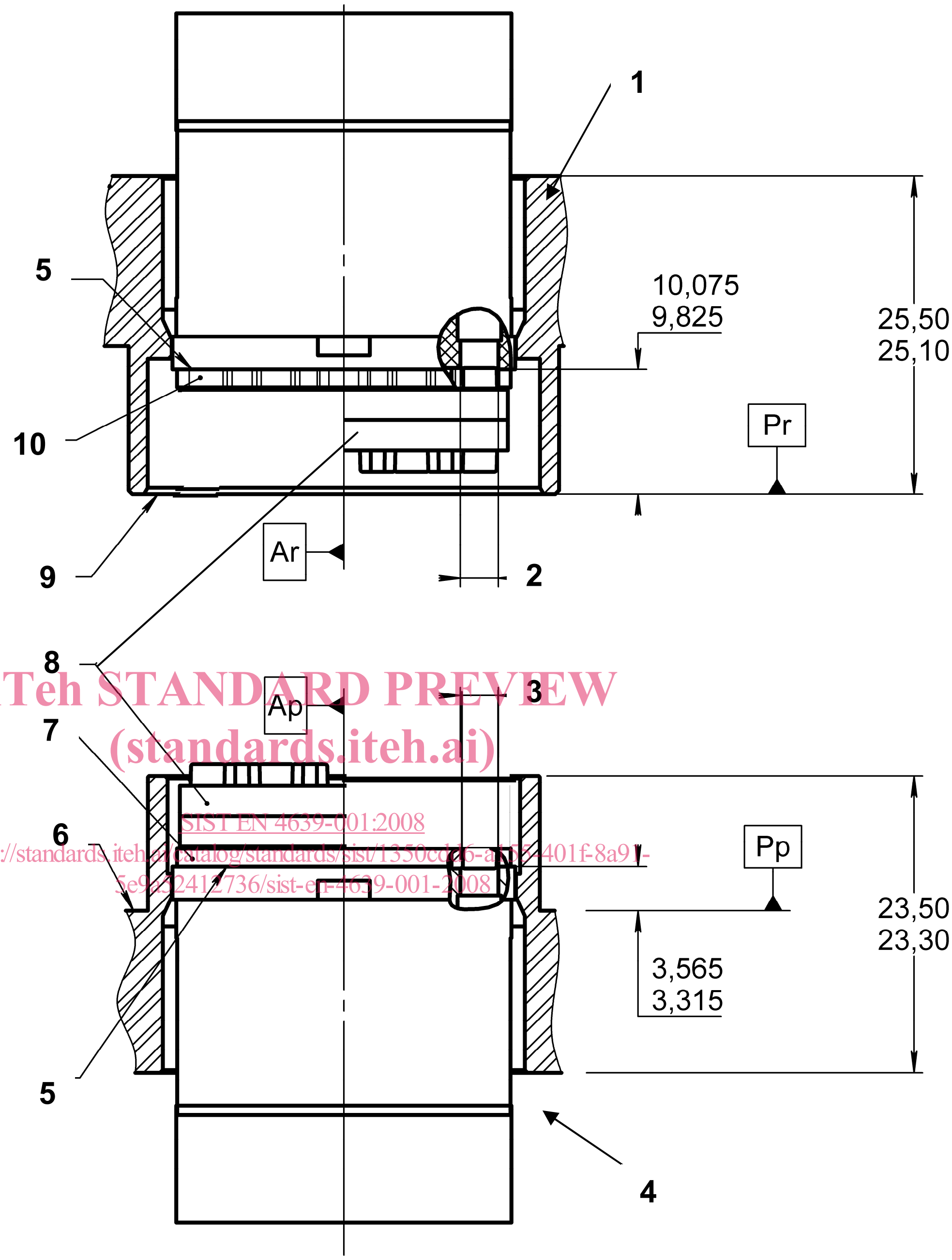
6.3 Plug

All housing dimensions are defined in EN 4644-001.

6.4 Modules

6.4.1 Single rectangular connector interface insert

See Figure 1.



Key

1 Receptacle connector

2 ∅ Pin cavity position A | ⌖ | 0,30 | Ar | Pr |

3 ∅ Pin cavity position A | ⌖ | 0,30 | Ap | Pp |

4 Plug connector

5 Front face of the module

6 Mechanical bottom of receptacle

7 Interfacial seal

8 Sleeve holder

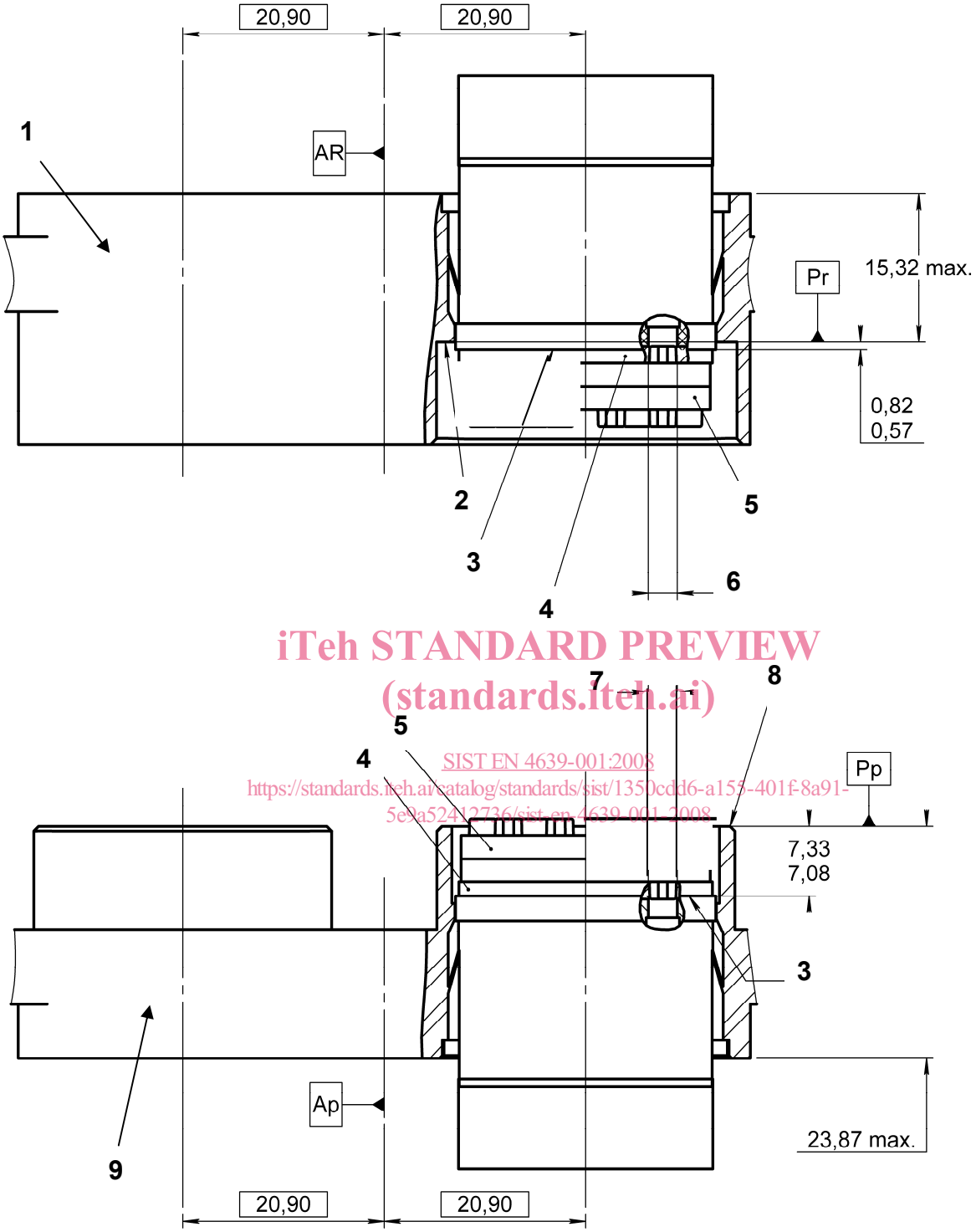
9 Mechanical bottom of plug

10 Interfacial seal

Figure 1

6.4.2 Dual rectangular connector interface insert

See Figure 2.



Key

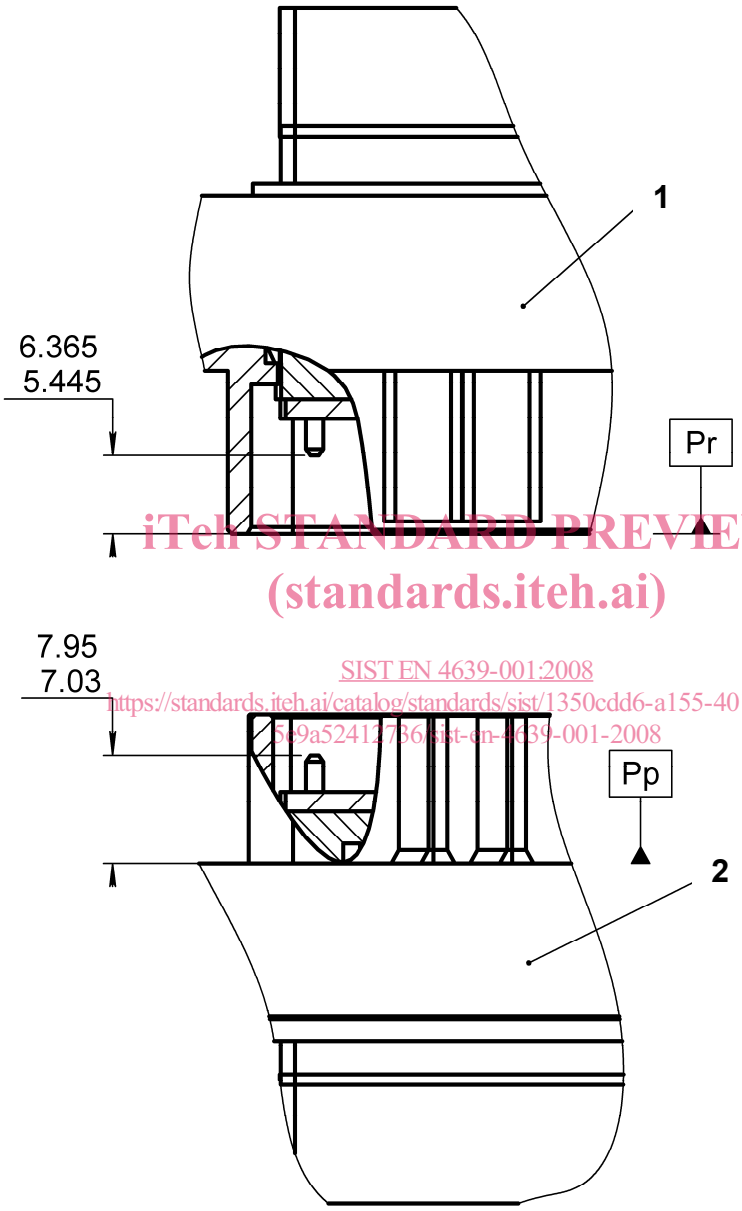
1 Receptacle connector
2 Mechanical bottom of plug
3 Front face of the module
4 Interfacial seal
5 Sleeve holder
6 ∅ Pin cavity position A | ⌖ | 0,30 | Ar | Pr |
7 ∅ Pin cavity position A | ⌖ | 0,30 | Ap | Pp |
8 Mechanical bottom of the receptacle
9 Plug connector

Figure 2

6.5 Mating dimensions

6.5.1 Mating dimensions for single rectangular connector

The mating dimensions of plug and receptacle for single rectangular connector are shown in Figure 3.



Key

1 Single rectangular receptacle
2 Single rectangular plug

Figure 3