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Part 001 : Technical specification (8.2100.001)

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- iii) requires additional national guidance or information

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Introduction

This draft standard is based on European discussions in which the UK has taken an active part. Your comments on this draft are welcome and will assist in the preparation of the consequent British Standard. Comment is particularly welcome on national, legislative or similar deviations that may be necessary.

Even if this draft standard is not approved by the UK, if it receives the necessary support in Europe, the UK will be obliged to publish the official English Language text unchanged as a British Standard and to withdraw any conflicting standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with reasons) or positive vote on this draft.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	(7)
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/ Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

**ASD-STAN STANDARD
NORME ASD-STAN
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ICS:

Descriptors:

ENGLISH VERSION

**Aerospace series
Arc Fault Circuit breakers, **single-pole**,
temperature compensated,
rated current 3 A to 25 A, 115Vac 400 Hz Constant Frequency
Part 001 : Technical specification**

**Série aéronautique
Disjoncteurs **unipolaire** à détection d'arc
compensés en température,
intensités nominales 3 A à 25 A
Partie 001 : Spécification technique**

**Luft-und Raumfahrt
Arc Fault Schutzschalter, **einpolig**,
Temperaturkompensiert,
Nennströme von 3 A bis 25 A
Teil 001 : Technische Lieferbedingungen**

This "Aerospace Series" Prestandard has been drawn up under the responsibility of ASD-STAN (The Aerospace and Defence Industries Association of Europe- Standardization). It is published on green paper for the needs of the European Aerospace and Defence Industry. It has been technically approved by the experts of the concerned Domain following member comments.

Subsequent to the publication of this Prestandard, the technical content shall not be changed to an extent that interchangeability is affected, physically or functionally, without re-identification of the standard.

After examination and review by users and formal agreement of ASD-STAN it will be submitted as a draft European Standard to CEN (European Committee for Standardization) for formal vote.

Edition approved for publication

Comments should be sent within six months
after the date of publication to
ASD-STAN

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Foreword

This standard was reviewed by the Domain Technical Coordinator of ASD-STAN's **Mechanical** Domain.

After inquiries and votes carried out in accordance with the rules of ASD-STAN defined in ASD-STAN's General Process Manual, this standard has received approval for Publication.

1 Scope

This standard specifies the **single-pole** temperature compensated arc fault circuit breakers without signal contacts, rated from 3 A to 25 A and used in aircraft on-board circuits. In any operating state a "trip-free" tripping is ensured. These Items are designed to protect aircraft wiring system from circuit overload and arc faults. It describes specific environmental, electrical and mechanical characteristics and the stringency of tests to be applied according to test methods of EN 3841-100.

These circuit breakers are intended for use in aircraft with electrical supplies in accordance with EN 2282.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 2266-003 Aerospace series – Cables, electrical, for general purpose – Operating temperature between - 55 °C and 200 °C – Part 003 : Ink jet printable – Product standard. 1)

EN 2282 Aerospace series – Characteristics of aircraft electrical supplies.

EN 3841-100 Aerospace series – Circuit breakers Test Methods - Part 100 : General. 1)

EN 3042 Aerospace series - Quality assurance - EN aerospace products - Qualification procedure. 1)

MIL-I-81969/1A Installing and removal tools, connector electrical contact, type III, class 2, composition C. 2)

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

DO160 Environmental conditions and test procedures for airborne equipment

AS 5692 Aerospace Standard Arc Fault Circuit Breaker (AFCB) Aircraft, Trip-Free, Single Phase and Three Phase 115Vac-400Hz – Constant Frequency 3)

3 Definitions

For the purposes of this standard, the definitions given in EN 3841-100 apply.

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

²⁾ Published by : Department of Defense (DoD), the Pentagon, Washington, D.C.20307, U.S.A.

³⁾ Published by: SAEI Technical Standard Board

4 Description

These arc fault circuit breakers are operated by a "push-pull" type single pushbutton (actuator). In case of thermal overload or arc fault, electrical contacts must open. In both cases Tripping time is related according to the type of default. In any operating state a "trip-free" tripping is ensured.

5 Design

5.1 Materials

5.1.1 Metallic materials

All metallic parts shall be resistant to corrosion or finished against corrosion. When dissimilar materials are in close contact, an adequate protection against corrosion shall be used so that the electromotive force of the galvanic couple does not exceed 0,25 V.

When bimetals are used, an eventual corrosion shall not affect the good operation of the circuit breaker.

5.1.2 Insulation materials

The insulating parts shall be made of auto-extinguishing or non-flammable materials; they shall not emit damaging or explosive vapours, even in presence of fire or internal electric arc.

They shall be insensitive to moulds and micro-organisms action.

Application of any material or protective coating, which might crack, break or flake shall be forbidden.

Materials which are not specified or which are not specially described shall be as light as possible for the requested use.

Materials shall be selected according to security criteria (toxicity, smoke density) as defined in contractual documents.

5.2 Design

5.2.1 Insulating box

The insulating box shall integrate besides the mechanism, the connection and attachment unit.

5.2.2 Free release mechanism

Design of circuit breaker mechanism shall allow free release; i.e. the circuit breaker cuts out in case of overload, and remains cut out even if the actuator is kept by force in engaged position.

A new engagement of circuit breaker is only possible after a first total release of the control actuator.

The operation in these conditions shall not affect further performances of the circuit breaker.

5.2.3 Attachment

All visible parts shall be black coloured and non-reflective.