



Institut luxembourgeois de la normalisation
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des produits et services

ILNAS-EN 3662-001:2006

**Aerospace series - Circuit breakers,
three-pole, temperature compensated,
rated current 20 A to 50 A - Part 001:
Technical specification**

Série aérospatiale - Disjoncteurs
tripolaires compensés en température,
intensités nominales 20 A à 50 A - Partie
001 : Spécification technique

Luft- und Raumfahrt - Schutzschalter,
dreipolig, Temperaturkompensiert,
Nennströme von 20 A bis 50 A - Teil 001:
Technische Lieferbedingungen

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National Foreword

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Luft- und Raumfahrt - Schutzschalter, dreipolig, Temperaturkompensiert, Nennströme von 20 A bis 50 A - Teil 001: Technische Lieferbedingungen

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Foreword

This European Standard (EN 3662-001:2006) 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of an identical text or by endorsement, at the latest by February 2007, and conflicting national standards shall be withdrawn at the latest by February 2007.

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.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies the three-pole temperature compensated circuit breakers with signal contacts, polarized or not, rated from 20 A to 50 A and used in aircraft on-board circuits. 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 (all categories).

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 2083, *Aerospace series — Copper or copper alloy conductors for electrical cables — Product standard.*

EN 2282, *Aerospace series — Characteristics of aircraft electrical supplies.*

EN 2825, *Aerospace series — Burning behaviour of non metallic materials under the influence of radiating heat and flames — Determination of smoke density.¹⁾*

EN 2826, *Aerospace series — Burning behaviour of non metallic materials under the influence of radiating heat and flames — Determination of gas components in the smoke.¹⁾*

EN 3662-005, *Aerospace series — Circuit breakers, three-pole, temperature compensated, rated current 20 A to 50 A Part 005: With polarized signal contact — Product standard.*

EN 3662-006, *Aerospace series — Circuit breakers, three-pole, temperature compensated, rated current 20 A to 50 A Part 006: With polarized signal contact — Bus-bar version — Product standard.*

EN 3841-100*, *Aerospace series — Circuit breakers — Test Methods — Part 100: General.*

EN 3844-1, *Aerospace series — Flammability of non metallic materials — Part 1: Small burner test, vertical — Determination of the vertical flame propagation.¹⁾*

EN 9133, *Aerospace series — Quality management systems — Qualification Procedure for Aerospace Standards Parts.*

TR 6083, *Aerospace series — Cut-outs for installation of electrical components.²⁾*

MIL-I-81969/1A, *Installing and removal tools, connector electrical contact, type III, class 2, composition C.³⁾*

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

* And all its parts quoted.

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

2) Published as AECMA Technical Report at the date of publication of this standard.

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

3 Terms and definitions

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

4 Description

These circuit breakers are operated by a "push-pull" type single pushbutton (actuator) and with delayed action "trip-free" tripping. Their function is assured up to the short-circuit current.

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.