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National Standards Authority of Ireland

IRISH STANDARD

I.S. EN 2665-001:1999

ICS 49.060

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AEROSPACE SERIES - CIRCUIT BREAKERS, THREE-POLE, TEMPERATURE COMPENSATED, RATED CURRENTS 20 A TO 50 A - PART 001: TECHNICAL SPECIFICATION

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EUROPEAN STANDARD

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EN 2665-001

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Descriptors: Aircraft industry, electric circuits, circuit breakers, tri-pole circuit breakers, characteristics, tests

English version

Aerospace series
Circuit breakers, three-pole, temperature compensated, rated currents 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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European Committee for Standardization
Comité Européen de Normalisation
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Foreword

This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECMA).

After inquiries 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 AECMA, 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of an identical text or by endorsement, at the latest by December 1999, and conflicting national standards shall be withdrawn at the latest by December 1999.

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

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1 Scope

This standard specifies the required characteristics for three-pole, temperature compensated circuit breakers, rated currents from 20 A to 50 A, for use in aircraft electrical systems, at temperatures between –55 °C and 90 °C and at a maximum altitude of Z = 15 000 m.

It shall be used together with EN 2350.

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 2282	Aerospace series - Characteristics of aircraft electrical supplies
EN 2350	Aerospace series - Circuit breakers - Technical specification
EN 3042	Aerospace series - EN aerospace products - Qualification procedure

3 Definitions

For the purposes of this standard, the definitions given in EN 2350 apply.

4 Description

These circuit breakers are operated by a push-pull actuator button with trip-free release and delayed tripping; they are explosion-proof. Their operation is ensured up to the short-circuit current.

5 Required characteristics

Rated currents (I_n) and voltages

See tables 1 and 2.

Table 1 - Rated currents

Rated currents (I_n) A	20	25	30	35	40	45	50
Code	20 A	25 A	30 A	35 A	40 A	45 A	50 A
Range	Low			Medium		High	
Button marking	20	25	30	35	40	45	50

Table 2 - Rated voltages

Rated voltage	115/200 V a.c., 400 Hz, three-phase

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6 Tests

6.1 Mechanical tests

See table 3 and EN 2350.

Table 3 - Mechanical characteristics

Characteristics				Requirements
Visual inspection				EN 2350
Dimensions and mass				EN 2350
Actuator button travel				EN 2350
Operating force		Closing force		20 N to 80 N
		Opening force		5 N to 45 N
Mechanical strength	Actuator button	Transverse load		110 N min.
		Longitudinal load	Push direction	110 N min.
			Pull direction	110 N min.
	Mounting	Tightening torque		5 Nm min.
		Rotational torque		4 Nm min.
	Electrical connections	Tightening torque		2,5 Nm min.
		Pull force along F1 1)		185 N min.
		Push force along F2 1)		90 N min.
1) See product standard.				

6.2 Environmental tests

See table 4 and EN 2350.

Table 4 - Environmental conditions

Characteristics	Requirements
Vibration 1)	5 Hz to 54 Hz, constant amplitude 2 a = 0,51 mm
	54 Hz to 2 000 Hz, constant acceleration 29,43 m/s² (≈ 3 g_n)
Mechanical shock 1)	245,25 m/s² (≈ 25 g_n)
Centrifugal acceleration 1)	166,8 m/s² (≈ 17 g_n)
Sand and dust	See EN 2350.
Corrosion	See EN 2350.
Humidity	See EN 2350. Category B: 10 cycles
Explosion proofness	Short-circuit current, see product standard Voltage 115/200 V a.c., 400 Hz, three-pole load
Fluid contamination	See EN 2350.
1) Tightening torques for these tests: - electrical connections: 2,2 Nm to 2,5 Nm; - mounting: 3 Nm to 5 Nm.	

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