SLOVENSKI STANDARD
SIST EN 2349-312:2009

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Aeronavtika - Zahteve in preskusni postopki za releje in kontaktorje - 312. del: Električna življenjska doba - Mešana obremenitev

Aerospace series - Requirements and test procedures for relays and contactors - Part 312: Electrical service life - Mixed load

Luft- und Raumfahrt - Anforderungen und Prüfverfahren für Relais und Schaltschütze - Teil 312: Elektrische Lebensdauer - Mischlast

Série aérospatiale - Exigences et méthodes d'essais des relais et contacteurs - Partie 312 : Pouvoirs de commutation - Charges combinées

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Aerospace series - Requirements and test procedures for relays and contactors - Part 312: Electrical service life - Mixed load

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 2349-312:2006) 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of an identical text or by endorsement, at the latest by April 2007, and conflicting national standards shall be withdrawn at the latest by April 2007.

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 a method for testing the electrical service life - mixed load of relays and contactors. It shall be used together with EN 2349-100.

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 2349-100, *Aerospace series — Requirements and test procedures for relays and contactors — Part 100: General requirements* [1)]

EN 2349-302, *Aerospace series — Requirements and test procedures for relays and contactors — Part 302: Insulation resistance*

EN 2349-303, *Aerospace series — Requirements and test procedures for relays and contactors — Part 303: Dielectric strength*

EN 2349-307, *Aerospace series — Requirements and test procedures for relays and contactors — Part 307: Contact voltage drop*

EN 2349-412, *Aerospace series — Requirements and test procedures for relays and contactors — Part 412: Seal*

3 Mounting method

The relay or contactor shall be wired in accordance with EN 2349-100 and the rated contact load.

The relay or contactor shall be mounted and placed in an air circulating heating cabinet.

4 Test procedures

4.1 Each normally closed and normally open contact shall connect, conduct and disconnect the specified loads. The loads shall be connected to (28 ± 1) V d.c.

4.2 Unless otherwise specified, the operating and resting contacts shall be loaded as follows:

a) for relays or contactors with a nominal contact rating of less than 20 A:

   1) 0,5 A resistive load;

   2) 0,3 A inductive load;

   3) 0,1 A resistive load;

   4) rated resistive load.

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1) In preparation at the date of publication of this standard.

b) for relays or contactors with a nominal contact rating of more than 20 A:

1) 10 % of the rated resistive load;

2) 10 % of the rated resistive load;

3) 10 % of the rated resistive load;

4) rated resistive load.

4.3 For relays or contactors with more than two poles, the above loads shall be applied in the same sequence to the other poles.

4.4 Each contact shall switch one load only in each case.

4.5 The resting and operating contacts shall be tested simultaneously.

4.6 The coil of the relay or contactor shall be energized at the rated voltage.

4.7 The contacts shall be monitored for operation.

4.8 Each defective switching operation shall constitute a failure.

4.9 The contact voltage drop shall be measured for each switching operation.

The values shown in Table 1 shall not be exceeded.

Table 1 — Contact voltage drop before and during mixed load testing

Rated resistive contact current	Contact voltage drop before test	Contact voltage drop during the test mV			
A	mV	0,5 A	0,3 A	0,1 A	Resistive load
5	150	40	24	8	175
10	150	32	20	7	175
15	150	30	18	6	175
20	150	30	18	6	175

4.10 For relays or contactors with rated contact current > 20 A, the maximum permissible contact voltage drop carrying 10 % of the rated load shall be calculated as follows:

$$U_d = \left[I_1 \times \left(\frac{0{,}15}{I_2} \right) + 0{,}05 \right] \times 1\,000$$

Where

U_d is the voltage drop, in millivolts;

I_1 is the load current, in amperes;

I_2 is the rated current, in amperes.

4.11 The test shall be performed at the maximum permissible temperature, as defined in the product standard.

During the test the housing of the relay or contactor shall be connected to the earth of the electrical installation by a fuse with a rating of 5 % of the rated resistive contact current, but not greater than 3 A. Blowing of the fuse shall constitute a failure.

4.12 Number of switching cycles: see product standard. One switching cycle comprises:

— coil energized time: (29 ± 3) s;

— coil de-energized time: (1,5 ± 0,5) s.

5 Test criteria

— No electrical or mechanical failure;

— no sticking or seizing of contacts;

— no blown fuse;

— the voltage drop on the contacts shall not exceed the values shown in Table 1.

6 Verification tests

Test in accordance with EN 2349-302, EN 2349-303, EN 2349-307 and EN 2349-412.