



# SLOVENSKI STANDARD SIST EN 3841-305:2005

01-april-2005

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Aerospace series - Circuit breakers - Test methods - Part 305: Short-circuit performance

Luft- und Raumfahrt - Schutzschalter - Prüfverfahren - Teil 305: Kurzschlussverhalten

**STANDARD PREVIEW**

Série aérospatiale - Disjoncteurs - Méthodes d'essais - Partie 305 : Tenue en court-circuit

[SIST EN 3841-305:2005](#)

Ta slovenski standard je istoveten z: **EN 3841-305:2004**

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**ICS:**

49.060 Ščē\ æš Á^• [ |b\ æ Aerospace electric  
^|\ dā} æ] !^ { æš Á ã c^ { ã equipment and systems

**SIST EN 3841-305:2005**

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EUROPEAN STANDARD

**EN 3841-305**

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2004

ICS 49.060

English version

**Aerospace series - Circuit breakers - Test methods - Part 305:  
Short-circuit performance**Série aérospatiale - Disjoncteurs - Méthodes d'essais -  
Partie 305 : Tenue en court-circuitLuft- und Raumfahrt - Schutzschalter - Prüfverfahren - Teil  
305: Kurzschlussverhalten

This European Standard was approved by CEN on 10 September 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG**Management Centre: rue de Stassart, 36 B-1050 Brussels**

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## Foreword

This document (EN 3841-305:2004) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-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 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 June 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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## 1 Scope

This standard specifies a method of verifying the short-circuit performance of circuit breakers.

It shall be used together with EN 3841-100.

## 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 3841-100, *Aerospace series – Circuit breakers – Test methods – Part 100: General*

## 3 Method

### 3.1 General conditions

#### 3.1.1 Mounting

The circuit breakers shall be mounted as described in EN 3841-100, in connection with the technical specification and the applicable product standard.

#### 3.1.2 Procedure

The test current shall be set while the circuit breaker is replaced by a shunt with negligible impedance.

The adjustment shall be carried out with ohmic resistors and ironless inductors.

NOTE If iron-core inductors are used, saturation shall not occur until the peak of the test current has been reached.

The resistors and inductors shall be connected in series.

The inductance of the current source shall be taken into account when determining the time constant and the power factor.

During the test, voltage, current and time shall be recorded simultaneously.

### 3.2 Test circuit

According to Figure 1 with d.c. and a.c., single-pole.

According to Figure 2 with a.c., three-pole.

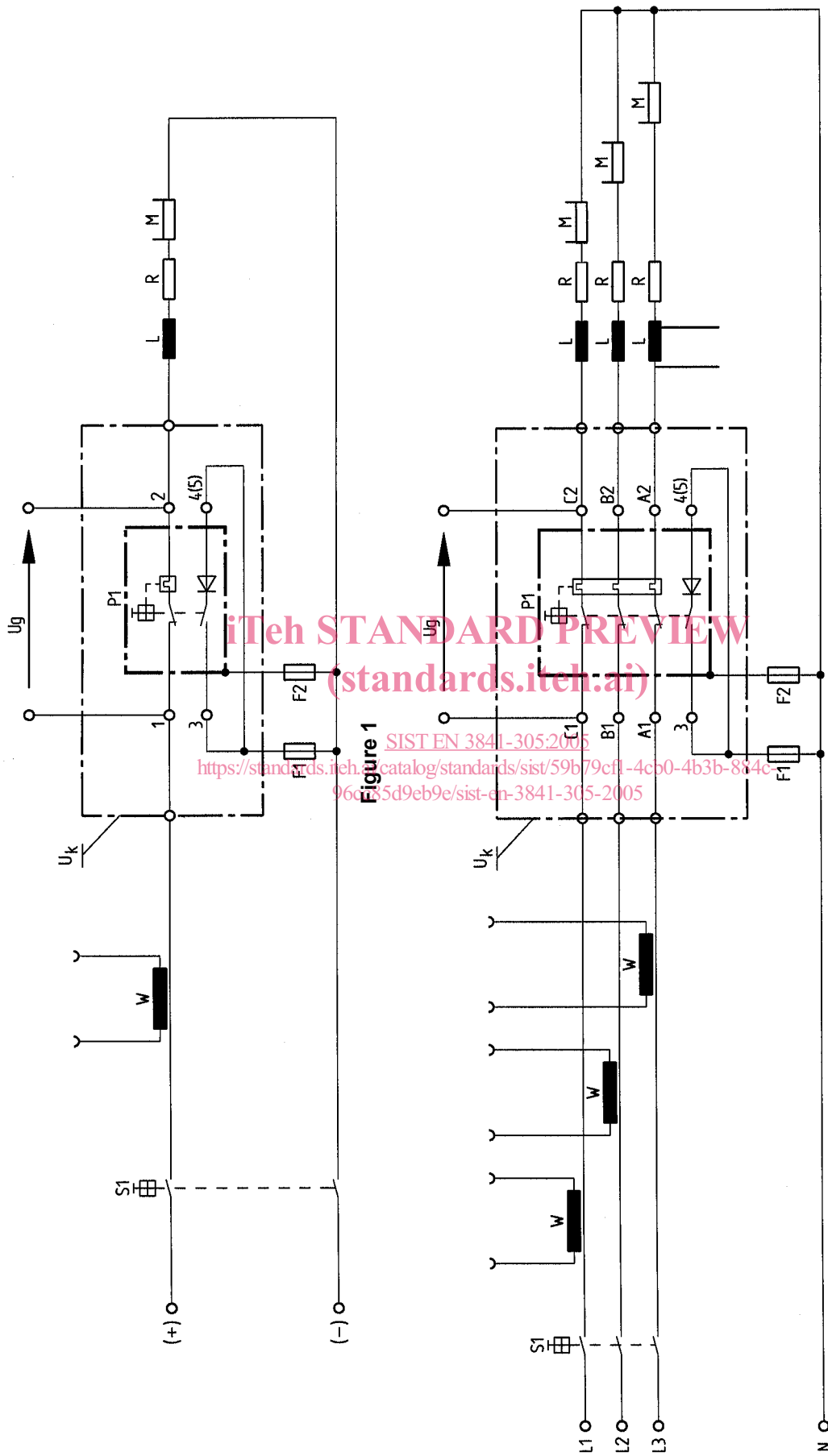


Figure 1

Figure 2

Where **S1** : main switch  
**L** : inductance  
**R** : loading resistor  
**W** or **M** : converter or shunt for current measurement

**P1** : test specimen (circuit breaker)  
**Ug** : voltage at circuit breakers' terminals  
**Uk** : test chamber (for explosion proofness)  
**F1, F2** : fuses 0,1 A

**L1, L2, L3** : a.c. phases  
**N** : neutral

EN 3841-305:2004 (E)

### 3.3 Operations

#### 3.3.1 Break operation (CO)

The circuit breakers shall be switched on without current, i.e. with the test circuit opened by the main switch (S1) (see Figures 1 and 2). Then the short-circuit shall be initiated by the main switch.

#### 3.3.2 Make operation (OCO)

The circuit breakers shall be switched off. Main switch (S1) shall be closed so as to prepare the short-circuit. Then the short-circuit shall be initiated by switching the circuit breaker on.

Afterwards the switch on the actuator shall be maintained in the "on" position.

### 3.4 Operating conditions

Test current, power factor or time constant, number of operations, altitude, and switching sequence shall be defined in the product standard. There shall be an interval of 6 min to 10 min between two operations. After each break operation, the test voltage at the circuit breakers' terminals shall be maintained for at least 1 min (main switch S1 shall remain closed).

When multi-pole circuit breakers are tested for single-pole overload tripping, the remaining poles shall carry  $0,9 I_n$ .

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### 3.5 Requirements

The ground fuses shall not blow during the operations.

Verification of technical characteristics in accordance with technical specification and product standard.