
Environmental testing - Part 2-69: Tests - Test Te: Solderability testing of electronic components for surface mount technology by the wetting balance method

Environmental testing -- Part 2: Tests - Test Te: Solderability testing of electronic components for surface mount technology by the wetting balance method

Umweltprüfungen -- Teil 2: Prüfungen - Prüfung Te: Prüfung der Lötbarkeit von Bauelementen der Elektronik für Oberflächenmontagetechnologie mit der Benetzungswaage

Essai d'environnement -- Partie 2: Essais - Essai Te: Essai de brasabilité des composants électroniques pour la technologie de montage en surface par la méthode de la balance de mouillage

Ta slovenski standard je istoveten z: EN 60068-2-69:1996

ICS:

19.040	Preskušanje v zvezi z okoljem	Environmental testing
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SIST EN 60068-2-69:2001**en**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60068-2-69

January 1996

ICS 19.040

Descriptors: Environmental testing, solderability, electronic components, surface mounting technology, wetting balance method, test apparatus, procedures

English version

Environmental testing
Part 2: Tests
Test Te: Solderability testing of electronic components
for surface mount technology by the wetting balance method
(IEC 68-2-69:1995)

Essai d'environnement

Partie 2: Essais

Essai Te: Essai de brasabilité des composants électroniques pour la technologie de montage en surface par la méthode de la balance de mouillage
(CEI 68-2-69:1995)

Umweltprüfungen - Teil 2: Prüfungen

Prüfung Te: Prüfung der Lötbarkeit von

Bauelementen der Elektronik für

Oberflächenmontagetechnologie mit der

Benetzungswaage

(IEC 68-2-69:1995)

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This European Standard was approved by CENELEC on 1995-11-28. CENELEC 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 CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization

Comité Européen de Normalisation Electrotechnique

Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 50/358/FDIS, future edition 1 of IEC 68-2-69, prepared by TC 50, Environmental testing, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60068-2-69 on 1995-11-28.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-09-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1996-09-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annexes A, B and ZA are normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 68-2-69:1995 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications
with their corresponding European publications

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 (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 68-2-20	1979	Basic environmental testing procedures Part 2: Tests - Test T: Soldering	HD 323.2.20 S3 ¹⁾	1988
IEC 68-2-44	1995	Guidance on Test T: Soldering	EN 60068-2-44	1995
IEC 68-2-54	1985	Test Ta: Soldering - Solderability testing by the wetting balance method	HD 323.2.54 S1	1987
ISO 683	series	Heat-treatable steels, alloy steels and free-cutting steels	-	-
ISO 6362	series	Wrought aluminium and aluminium alloy extruded rods/bars, tubes and profiles	-	-
ISO 9453	1990	Soft solder alloys Chemical compositions and forms	-	-
ISO 9454-1	1990	Soft soldering fluxes Classification and requirements Part 1: Classification, labelling and packaging	-	-

1) HD 323.2.20 S3 includes A2:1987 to IEC 68-2-20.

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**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC
68-2-69**

Première édition
First edition
1995-12

Essai d'environnement –

Partie 2:

**Essais – Essai Te: Essai de brasabilité des
composants électroniques pour la technologie
de montage en surface par la méthode de
la balance de mouillage**

**ITeH STANDARD REVIEW
(standards.iteh.ai)**

Environmental testing –

Part 2:

**Tests – Test Te: Solderability testing of electronic
components for surface mount technology by
the wetting balance method**

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International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ENVIRONMENTAL TESTING –

**Part 2: Tests – Test Te: Solderability testing of
electronic components for surface mount technology
by the wetting balance method**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
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- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 68-2-69 has been prepared by IEC technical committee 50: Environmental testing.

The text of this standard is based on the following documents:

FDIS	Report on voting
50/358/FDIS	50/374/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

Annexes A and B form an integral part of this standard.

ENVIRONMENTAL TESTING –

Part 2: Tests – Test Te: Solderability testing of electronic components for surface mount technology by the wetting balance method

1 Scope

This International Standard describes two wetting balance methods. These methods determine quantitatively the solderability of terminations on surface mounted devices.

The procedures describe the solder bath wetting balance method and the solder globule wetting balance method and are both applicable to components with metallic terminations and metallized solder pads.

The terms used in this standard are those defined in IEC 68-2-20 and IEC 68-2-54.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 68. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 68 are encouraged to investigate the possibility of applying the most recent editions of the normative documents listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 68-2-20: 1979, *Basic environmental testing procedures – Part 2: Tests – Test T: Soldering*

IEC 68-2-44: 1995, *Environmental testing – Part 2: Tests – Guidance on Test T: Soldering*

IEC 68-2-54: 1985, *Basic environmental testing procedures – Part 2: Tests – Test Ta: Soldering – Solderability testing by the wetting balance method.*

ISO 683: *Heat-treatable steels, alloy steels and free-cutting steels*

ISO 6362: *Wrought aluminium and aluminium alloy extruded rods/bars, tubes and profiles*

ISO 9453:1990, *Soft solder alloys – Chemical compositions and forms*

ISO 9454-1: 1990, *Soft soldering fluxes – Classification and requirements – Part 1: Classification, labelling and packaging*

3 General description of the method

After applying the liquid flux to the component termination and mounting the component in a suitable holder, the specimen is suspended from a sensitive balance. The component termination is brought into contact with the cleaned surface of a solder bath or the apex of a solder globule, and immersed to the prescribed depth.

The resultant forces of buoyancy and surface tension acting upon the immersed termination are detected by a transducer and converted to a signal which is continuously monitored as a function of time, and recorded on a high speed chart recorder or displayed on a computer screen.

The wetting speed and the extent of wetting are derived from the force against time curve.

4 Description of the test apparatus

A diagram showing a suitable arrangement for the test apparatus is shown in figure 1. The specimen is suspended from a sensitive balance and a mechanism used to either raise the solder to meet the specimen or lower the specimen into the solder.

After conditioning, the transducer signal is passed to either a chart recorder or a computer, where the force against time curve may be displayed and analysed.

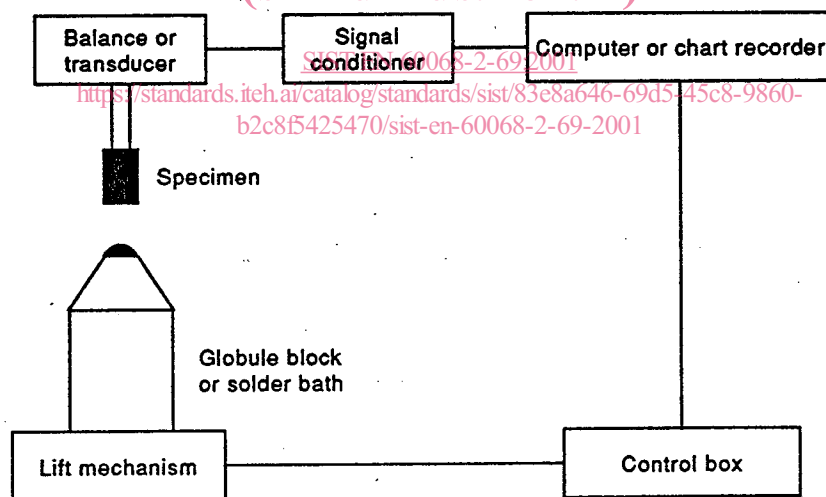


Figure 1 – Test apparatus

Any other system capable of measuring the vertical forces acting on a specimen is admissible, providing that the system has the characteristics given in annex A, and the solder bath and globule support block meet the requirements of annex A.