

Workmanship requirements for soldered electronic assemblies - Part 2: Surface-mount assemblies

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**Workmanship requirements for soldered electronic assemblies**  
**Part 2: Surface-mount assemblies**  
(IEC 61192-2:2003)

Exigences relatives à la qualité  
d'exécution des assemblages  
électroniques brasés  
Partie 2: Assemblage par montage  
en surface  
(CEI 61192-2:2003)

Anforderungen an die Ausführungsqualität  
von Lötabauplatten  
Teil 2: Bauplatten  
in Oberflächenmontage  
(IEC 61192-2:2003)

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[SIST EN 61192-2:2003](#)

This European Standard was approved by CENELEC on 2003-04-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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 91/357/FDIS, future edition 1 of IEC 61192-2, prepared by IEC TC 91, Electronics assembly technology, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61192-2 on 2003-04-01.

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) 2004-01-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2006-04-01

This standard should be used in conjunction with the following parts of EN 61192, under the general title *Workmanship requirements for soldered electronic assemblies*:

Part 1: General

Part 2: Surface-mount assemblies

Part 4: Terminal assemblies

Annexes designated "normative" are part of the body of the standard.

In this standard, annexes A and ZA are normative.

Annex ZA has been added by CENELEC.

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**Endorsement notice**  
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The text of the International Standard IEC 61192-2:2003 was approved by CENELEC as a European Standard without any modification. [SIST EN 61192-2:2003](#)

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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 60194	- <sup>1)</sup>	Printed board design, manufacture and assembly - Terms and definitions	-	-
IEC 61191-1	- <sup>1)</sup>	Printed board assemblies Part 1: Generic specification - Requirements for soldered electrical and electronic assemblies using surface mount and related assembly technologies	EN 61191-1	1998 <sup>2)</sup>
IEC 61191-2	- <sup>1)</sup>	Part 2: Sectional specification - Requirements for surface mount soldered assemblies <a href="https://standards.iteh.ai/catalog/standards/sist/229de038-89e3-4562-b42e-294a5e302c4e/sist-en-61192-2-2003">https://standards.iteh.ai/catalog/standards/sist/229de038-89e3-4562-b42e-294a5e302c4e/sist-en-61192-2-2003</a>	EN 61191-2	1998 <sup>2)</sup>
IEC 61191-3	- <sup>1)</sup>	Part 3: Sectional specification - Requirements for through-hole mount soldered assemblies	EN 61191-3	1998 <sup>2)</sup>
IEC 61191-4	- <sup>1)</sup>	Part 4: Sectional specification - Requirements for terminal soldered assemblies	EN 61191-4	1998 <sup>2)</sup>
IEC 61192-1	- <sup>1)</sup>	Workmanship requirements for soldered electronic assemblies Part 1: General	EN 61192-1	2003 <sup>2)</sup>
IEC 61192-3	- <sup>1)</sup>	Part 3: Through-hole mount assemblies	EN 61192-3	2003 <sup>2)</sup>
IEC 61192-4	- <sup>1)</sup>	Part 4: Terminal assemblies	EN 61192-4	2003 <sup>2)</sup>
IEC 61193-1	- <sup>1)</sup>	Quality assessment systems Part 1: Registration and analysis of defects on printed board assemblies	EN 61193-1	2002 <sup>2)</sup>

<sup>1)</sup> Undated reference.

<sup>2)</sup> Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 9001	- <sup>1)</sup>	Quality management systems - Requirements	EN ISO 9001	2000 <sup>2)</sup>
ISO 9002	- <sup>1)</sup>	Quality systems - Model for quality assurance in production, installation and servicing	EN ISO 9002	1994 <sup>2)</sup>

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# NORME INTERNATIONALE INTERNATIONAL STANDARD

CEI  
IEC  
**61192-2**

Première édition  
First edition  
2003-03

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**Exigences relatives à la qualité d'exécution  
des assemblages électroniques brasés –**

**Partie 2:  
Assemblage par montage en surface**

**iTeh STANDARD PREVIEW**

**Workmanship requirements  
for soldered electronic assemblies –**

SIST EN 61192-2:2003

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**Part 2:  
Surface-mount assemblies**

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Commission Electrotechnique Internationale  
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## CONTENTS

FOREWORD .....	11
INTRODUCTION .....	15
1 Scope .....	17
2 Normative references .....	17
3 Terms and definitions .....	19
4 General requirements .....	19
4.1 Classification .....	19
4.2 Conflict .....	19
4.3 Interpretation of requirements .....	21
4.4 Antistatic precautions .....	21
5 Component preparation processes .....	21
6 Solder paste deposition process qualification .....	21
6.1 Solder paste characteristics .....	21
6.2 Assessment of the process .....	21
6.3 Solder paste deposition – Screen and stencil printing methods – Process control limits .....	23
7 Non-conductive adhesive deposition process .....	27
7.1 Pot life .....	27
7.2 Inter-stage storage and handling .....	27
7.3 Adhesive tackiness .....	29
7.4 Assessment of the adhesive attachment process .....	29
7.5 Adhesive deposition – Syringe dispensing method – Small components – Process control limits .....	29
8 Temporary masking processes .....	35
9 Component placement processes .....	35
9.1 Assessment of the process .....	35
9.2 Discrete components with gull-wing leads .....	39
9.3 IC components with flat-ribbon, L- or gull-wing leads on two sides .....	45
9.4 IC components with flat-ribbon, L- or gull-wing leads on four sides, for example, quad flat packs .....	51
9.5 Components with round or flattened (coined) leads .....	57
9.6 IC component packages with J-leads on two and four sides, for example, SOJ, PLCC .....	59
9.7 Leadless rectangular components with metallized terminations .....	65
9.8 Components with cylindrical endcap terminations .....	71
9.9 Bottom-only terminations on leadless components .....	75
9.10 Leadless chip carriers with castellated terminations .....	79
9.11 Components with butt leads .....	83
9.12 Components with inward L-shaped ribbon leads .....	89
9.13 Flat-lug leads on power dissipating components .....	91

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10 Post-placement rework.....	93
10.1 Rework of components placed on solder paste .....	95
10.2 Rework of components placed on non-conductive adhesive .....	95
11 Adhesive curing .....	95
12 Soldering processes.....	97
13 Cleaning processes.....	99
14 Hand placement and hand soldering, including hand rework/repair .....	99
15 Electrical test .....	99
 Annex A (normative).....	101
A.1 Introduction .....	101
A.2 Example solder fillets and alignment: flat-ribbon, L- and gull-wing leads .....	101
A.3 Example solder fillets and alignment: round or flattened (coined) leads .....	105
A.4 Example solder fillets and alignment: J-leads .....	107
A.5 Example solder fillets and alignment: rectangular or square end leadless components .....	109
A.6 Example solder fillets and alignment: cylindrical end cap terminations, for example, MELFs .....	111
A.7 Example solder fillets and alignment: bottom-only terminations on leadless components .....	115
A.8 Example solder fillets and alignment: leadless chip carriers with castellated terminations SIST EN 61192-2:2003 https://standards.iteh.standard-preview/iteh/228de038-89e3-4562-b42e-294a5e302c4e/sist-en-61192-2-2003 .....	119
A.9 Example solder fillets and alignment: butt joints .....	123
A.10 Example solder fillets and alignment: inward L-shaped flat ribbon leads .....	125
A.11 Example solder fillets and alignment: flat-lug leads on power dissipating components .....	127
 Figure 1 – Solder paste contour and cross-section – Target .....	23
Figure 2 – Solder paste contour and cross-section – Acceptable .....	25
Figure 3 – Solder paste contour and cross-section – Nonconforming.....	25
Figure 4 – Insufficient paste quantity – Nonconforming .....	27
Figure 5 – Smudged paste – Nonconforming.....	27
Figure 6 – Adhesive contour and quantity – Target.....	31
Figure 7 – Adhesive placement – Acceptable .....	33
Figure 8 – Adhesive placement – Nonconforming.....	35
Figure 9 – Discrete component placement – Target .....	39
Figure 10 – Discrete component placement – Acceptable.....	41
Figure 11 – Discrete component placement – Nonconforming .....	43
Figure 12 – IC gull-wing component, 2 sides – Target .....	45
Figure 13 – IC gull-wing component, 2 sides – Acceptable .....	47
Figure 14 – IC gull-wing component, 2 sides – Nonconforming .....	49
Figure 15 – IC gull-wing component, 4 sides – Target .....	51
Figure 16 – IC gull-wing component, 4 sides – Acceptable .....	53

Figure 17 – IC gull-wing component, 4 sides – Nonconforming.....	55
Figure 18 – Flattened lead target centered on land.....	57
Figure 19 – Flattened lead offset on land – Acceptable .....	57
Figure 20 – Flattened lead excessively offset on land – Nonconforming.....	57
Figure 21 – IC component, J-leads on two or four sides – Target .....	59
Figure 22 – IC component, J-leads on two or four sides – Acceptable .....	61
Figure 23 – IC component, J-leads on two or four sides – Nonconforming .....	63
Figure 24 – Rectangular component with metallized terminations – Target .....	65
Figure 25 – Rectangular component with metallized terminations – Acceptable .....	67
Figure 26 – Rectangular component with metallized terminations – Nonconforming .....	69
Figure 27 – Cylindrical endcap component – Target .....	71
Figure 28 – Cylindrical endcap component – Acceptable .....	73
Figure 29 – Cylindrical endcap component – Nonconforming.....	75
Figure 30 – Bottom-only leadless component – Target .....	75
Figure 31 – Bottom-only leadless component – Acceptable .....	77
Figure 32 – Bottom-only leadless component – Nonconforming .....	77
Figure 33 – Leadless chip carrier – Target .....	79
Figure 34 – Leadless chip carrier – Acceptable .....	81
Figure 35 – Leadless chip carrier – Nonconforming.....	81
Figure 36 – Butt lead component mounting – Target .....	83
Figure 37 – Butt-lead component mounting – Acceptable .....	85
Figure 38 – Butt-lead component mounting – Nonconforming.....	87
Figure 39 – Inward L-shaped ribbon leaded component – Target .....	89
Figure 40 – Inward L-shaped ribbon leaded component – Acceptable .....	89
Figure 41 – Inward L-shaped ribbon leaded component – Nonconforming .....	91
Figure 42 – Flat-lug component – Target .....	91
Figure 43 – Flat-lug component – Acceptable .....	93
Figure 44 – Flat-lug component – Nonconforming .....	93
Figure A.1 – Target solder fillet, levels A, B, C .....	101
Figure A.2 – Target alignment, levels A, B, C .....	101
Figure A.3 – Solder fillet, level B .....	103
Figure A.4 – Alignment, level B .....	103
Figure A.5 – Target solder fillet, levels A, B, C .....	105
Figure A.6 – Target alignment, levels A, B, C .....	105
Figure A.7 – Solder fillet, level B .....	105
Figure A.8 – Alignment, level B .....	105
Figure A.9 – Target solder fillet, levels A, B, C .....	107
Figure A.10 – Target alignment, levels A, B, C .....	107
Figure A.11 – Solder fillet, level B .....	107
Figure A.12 – Alignment, level B .....	107
Figure A.13 – Target solder fillet, levels A, B, C .....	109
Figure A.14 – Target alignment, levels A, B, C .....	109

Figure A.15 – Solder fillet, level B .....	109
Figure A.16 – Alignment, level B .....	109
Figure A.17 – Target solder fillet, levels A, B, C .....	111
Figure A.18 – Target alignment, levels A, B, C .....	111
Figure A.19 – Solder fillet, level B .....	113
Figure A.20 – Alignment, level B .....	113
Figure A.21 – Target solder fillet, levels A, B, C .....	115
Figure A.22 – Target alignment, levels A, B, C .....	115
Figure A.23 – Solder fillet, level B .....	117
Figure A.24 – Alignment, level B .....	117
Figure A.25 – Target solder fillet, levels A, B, C .....	119
Figure A.26 – Target alignment, levels A, B, C .....	119
Figure A.27 – Solder fillet, level B .....	121
Figure A.28 – Alignment, level B .....	121
Figure A.29 – Target solder fillet, levels A, B, C .....	123
Figure A.30 – Target alignment, levels A, B, C .....	123
Figure A.31 – Solder fillet, level B .....	123
Figure A.32 – Alignment, level B .....	123
Figure A.33 – Target solder fillet, levels A, B, C .....	125
Figure A.34 – Target alignment, levels A, B, C .....	125
Figure A.35 – Solder fillet, level B .....	125
Figure A.36 – Alignment, level B .....	125
Figure A.37 – Target solder fillet, levels A, B, C .....	127
Figure A.38 – Target alignment, levels A, B, C .....	127
Figure A.39 – Solder fillet, level B .....	127
Figure A.40 – Alignment, level B .....	127

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**WORKMANSHIP REQUIREMENTS  
FOR SOLDERED ELECTRONIC ASSEMBLIES –**

**Part 2: Surface-mount assemblies**

**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 co-operation 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 express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61192-2 has been prepared by IEC technical committee 91: Electronics assembly technology.

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

FDIS	Report on voting
91/357/FDIS	91/371/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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This standard should be used in conjunction with the following parts of IEC 61192, under the general title *Workmanship requirements for soldered electronic assemblies*:

- Part 1: General
- Part 3: Through-hole mount assemblies
- Part 4: Terminal assemblies

The committee has decided that the contents of this publication will remain unchanged until 2008.  
At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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## INTRODUCTION

This part of IEC 61192, combined with IEC 61192-1, is used to meet the end-product requirements defined in IEC 61191-1 and IEC 61191-2.

This standard may be used to enable the suppliers and users of surface-mount electronic assemblies to specify good manufacturing practices as part of a contract.

The respective requirements for through-hole assemblies, terminal attachment and the mounting of bare semiconductor die and carrier-mounted die, are included in separate but related standards.

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## WORKMANSHIP REQUIREMENTS FOR SOLDERED ELECTRONIC ASSEMBLIES –

### Part 2: Surface-mount assemblies

#### 1 Scope

This part of IEC 61192 specifies requirements for workmanship in soldered surface-mounted electronic assemblies and multichip modules on organic substrates, on printed boards, and on similar laminates attached to the surface(s) of inorganic substrates.

It applies to assemblies that are totally surface-mounted and to the surface-mount portions of assemblies that include other related assembly technologies, for example, through-hole mounting. It does not include metal or ceramic-based hybrid circuits in which the conductor metallization is deposited directly on a ceramic substrate or onto a ceramic-coated metal substrate.

#### 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.

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IEC 60194, *Printed board design, manufacture and assembly – Terms and definitions*

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IEC 61191-1, *Printed board assemblies – Part 1: Generic specification – Requirements for soldered electrical and electronic assemblies using surface mount and related assembly technologies*

IEC 61191-2, *Printed board assemblies – Part 2: Sectional specification – Requirements for surface mount soldered assemblies*

IEC 61191-3, *Printed board assemblies – Part 3: Sectional specification – Requirements for through-hole mount soldered assemblies*

IEC 61191-4, *Printed board assemblies – Part 4: Sectional specification – Requirements for terminal soldered assemblies*

IEC 61192-1, *Workmanship requirements for soldered electronic assemblies – Part 1: General*

IEC 61192-3, *Workmanship requirements for soldered electronic assemblies – Part 3: Through-hole mount assemblies*

IEC 61192-4, *Workmanship requirements for soldered electronic assemblies – Part 4: Terminal assemblies*

IEC 61193-1: *Quality assessment systems – Part 1: Registration and analysis of defects on printed board assemblies*

ISO 9001, *Quality management systems – Requirements*

ISO 9002, *Quality systems – Model for quality assurance in production, installation and servicing*