



SWEDISH
STANDARDS
INSTITUTE

SVENSK STANDARD SS-EN ISO 12224-3:2004

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Utgåva 1

Lödtråd för mjuklödning, massiv och flussfylld – Specifikation och provningsmetoder –

Del 3: Vättningsbalansmetod för bestämning av
effektiviteten hos flussfylld lödtråd (ISO 12224-3:2003)

Solder wire, solid and flux cored – Specifications and test methods –

Part 3: Wetting balance test method for flux cored
solder wire efficacy (ISO 12224-3:2003)

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The European Standard EN ISO 12224-3:2003 has the status of a Swedish Standard. This document contains the official English version of EN ISO 12224-3:2003.

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English version

Solder wire, solid and flux cored - Specifications and tests
methods - Part 3: Wetting balance test method for flux cored
solder wire efficacy (ISO 12224-3:2003)

Fils d'apport de brasage, pleins et à flux incorporé -
Spécifications et méthodes d'essai - Partie 3: Méthodes
d'essai à la balance de mouillage de l'efficacité des fils à
flux incorporé (ISO 12224-3:2003)

Massive Lotdrähte und flussmittelgefüllte Röhrenlote -
Anforderungen und Prüfverfahren - Teil 3: Bestimmung der
Flussmittelwirkung von flussmittelgefüllten Röhrenloten mit
der Benetzungswaage (ISO 12224-3:2003)

This European Standard was approved by CEN on 16 April 2003.

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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 Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN ISO 12224-3:2003) has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" in collaboration with Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DS.

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of an identical text or by endorsement, at the latest by November 2003, and conflicting national standards shall be withdrawn at the latest by November 2003.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 12224-3:2003 has been approved by CEN as EN ISO 12224-3:2003 without any modifications.

NOTE Normative references to International Standards are listed in Annex ZA (normative).

Solder wire, solid and flux cored — Specifications and test methods —

Part 3: Wetting balance test method for flux cored solder wire efficacy

1 Scope

This part of ISO 12224 specifies a wetting balance test method for measuring the flux efficacy of a cored solder wire for the electronics industry. The test is applicable to all classes of flux listed in ISO 9454-1.

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.

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

ISO 9455-16:1998, *Soft soldering fluxes — Test methods — Part 16: Flux efficacy tests, wetting balance method*

IEC 60068-2-54, *Environmental testing. Part 2: Tests. Test Ta: Soldering — Solderability testing by the wetting balance method*

3 Principle

A copper coupon and flux cored solder wire are simultaneously immersed in a bath of molten solder alloy that releases the flux to be tested by the coupon. It is subjected to a group of buoyancy forces due to Archimedian thrust and the different surface tensions at the alloy/flux/test specimen interfaces. Data are collected on wetting forces versus time which represent the meniscus, and therefore the wetting angle θ , the wetting speed and the total wetting performance, i.e. the efficacy of the flux cored solder wire.

4 Apparatus

4.1 Solder bath, containing the alloy capable of reaching test temperature (see Figure 1 and 6.3).

4.2 Wetting balance, and ancillary instrumentation, conforming to IEC 60068-2-54.

4.3 Stainless steel crucible (see Figures 1 and 2).

4.4 Additional attachments, to hold cored solder wire to be tested in accordance with the dimensions specified in Figure 3.

4.5 Copper sulfidation artificial reference (SAR) test specimens, of the following dimensions:

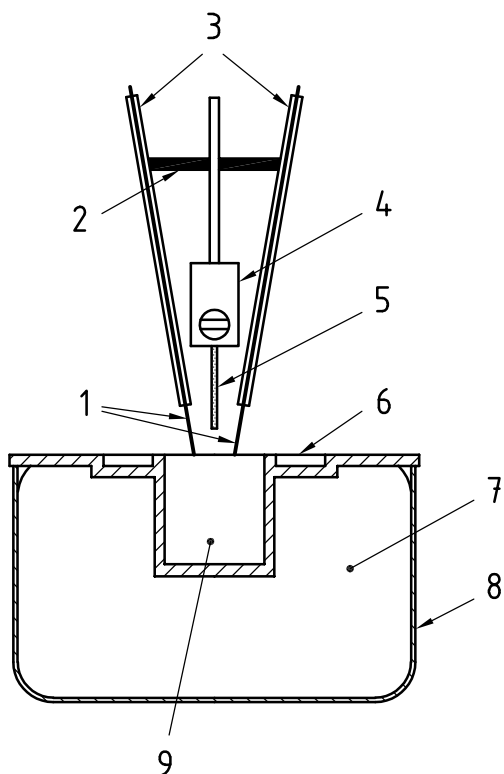
- width: $(10 \pm 0,1)$ mm for flux cored solder wire diameter ≥ 1 mm; $10 \times$ the flux cored solder wire diameter for flux cored solder wire diameter < 1 mm;
- length: constant between 15 mm and 30 mm, to suit the equipment used;
- thickness: either $0,1 \text{ mm} \pm 0,02 \text{ mm}$ or $0,3 \text{ mm} \pm 0,05 \text{ mm}$.

4.6 Absorbent paper or lint free tissue.

4.7 Non-metallic, heat-resistant scraper.

5 Reagents

5.1 Acetone or methyl ethyl ketone.



Key

- | | |
|-------------------------------------|--|
| 1 solder wire to be tested | 6 crucible |
| 2 insulation | 7 temperature controlled solder bath |
| 3 cored solder wire holder | 8 wetting balance bath |
| 4 wetting balance SAR coupon holder | 9 alloy obtained from reflowed and fluxless cored solder wire to be measured |
| 5 SAR coupon | |

Figure 1 — Apparatus for measuring wetting properties of cored solder wire