

Solderless connections —

Part 7: Spring clamp connections — General requirements, test methods and practical guidance

The European Standard EN 60352-7:2002 has the status of a
British Standard

ICS 31.220.10

National foreword

This British Standard is the official English language version of EN 60352-7:2002. It is identical with IEC 60352-7:2002.

The UK participation in its preparation was entrusted by Technical Committee EPL/48, Electromechanical components and mechanical structures for electronic equipment, to Subcommittee EPL/48/2, Connectors for electronic equipment, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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Solderless connections
Part 7: Spring clamp connections -
General requirements, test methods and practical guidance
(IEC 60352-7:2002)

Connexions sans soudure
Partie 7: Connexions à ressort -
Règles générales, méthodes d'essai
et guide pratique
(CEI 60352-7:2002)

Lötfreie Verbindungen
Teil 7: Federklemmverbindungen -
Allgemeine Anforderungen, Prüfverfahren
und Anwendungshinweise
(IEC 60352-7:2002)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 48B/1228/FDIS, future edition 1 of IEC 60352-7, prepared by SC 48B, Connectors, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60352-7 on 2002-10-01.

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) 2003-07-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2005-10-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60352-7:2002 was approved by CENELEC as a European Standard without any modification.

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INTRODUCTION

This part of IEC 60352 includes requirements, tests and practical guidance information.

Two test schedules are provided.

- a) The basic test schedule applies to spring-clamp connections which conform to all requirements of clause 4. These requirements are derived from experience with successful applications of such spring-clamp connections.
- b) The full test schedule applies to spring-clamp connections which do not fully conform to all requirements of clause 4, for example which are manufactured using materials or finishes not included in clause 4. This approach permits cost and time effective performance verification using a limited basic test schedule for established spring-clamp connections and an expanded full test schedule for spring-clamp connections requiring more extensive performance validation.

The values given in this specification are minimum values, which are harmonized with other IEC documents. Other standards may specify other values.

SOLDERLESS CONNECTIONS –

Part 7: Spring clamp connections – General requirements, test methods and practical guidance

1 Scope and object

This part of IEC 60352 is applicable to spring-clamp connections made with stripped wire without further preparation:

- solid conductors of 0,32 mm to 3,7 mm nominal diameter (0,08 mm² to 10 mm² cross-section), or
- stranded conductors of 0,08 mm² to 10 mm² cross-section, or
- flexible conductors of 0,08 mm² to 10 mm² cross-section

according to IEC 60228 or IEC 60189-3 for use in telecommunication equipment and in electronic devices employing similar techniques.

Information on materials and data from industrial experience is included in addition to the test procedures to provide electrically stable connections under prescribed environmental conditions.

The object of this part of IEC 60352 is to determine the suitability of spring-clamp connections under specified mechanical, electrical and atmospheric conditions.

NOTE IEC Guide 109 advocates the need to minimize the impact of a product on the natural environment throughout the product life cycle. It is understood that some of the materials permitted in this standard may have a negative environmental impact. As technological advances lead to acceptable alternatives for these materials, they will be eliminated from this standard.

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.

IEC 60050(581):1978, *International Electrotechnical Vocabulary (IEV) – Chapter 581: Electro-mechanical components for electronic equipment*
Amendment 1 (1998)

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*
Amendment 1 (1992)

IEC 60189-3:1988, *Low frequency cables and wires with PVC insulation and PVC sheath – Part 3: Equipment wires with solid or stranded conductor, PVC insulated, in singles, pairs and triples*

IEC 60228:1978, *Conductors of insulated cables*
Amendment 1 (1993)

IEC 60512 (all parts), *Connectors for electronic equipment – Tests and measurements*

IEC 60512-1-100, *Connectors for electronic equipment – Tests and measurements – Part 1-100: General – Applicable publications*

IEC 60884-1:1994, *Plug and socket-outlets for household and similar purposes – Part 1: General requirements*.

3 Definitions

For the purpose of this part of IEC 60352, the terms and definitions of IEC 60050(581) and IEC 60512-1 and the following additional terms and definitions apply:

3.1

spring-clamp termination

part of the contact or terminal to which one single conductor only is connected by means of a spring

3.1.1

universal spring-clamp termination

spring-clamp termination intended to accept solid, stranded and flexible unprepared conductors

3.1.2

non-universal spring-clamp termination

spring-clamp termination intended to accept conductors of one class only, for example solid conductors only, or conductors of two classes only, for example solid and stranded but not flexible

3.1.3

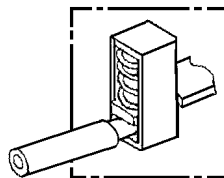
push-in spring-clamp termination

non-universal spring-clamp termination in which the connection is made by pushing in a solid or stranded conductor

3.2

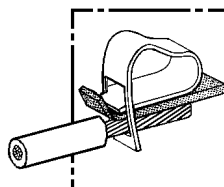
spring-clamp connection

solderless connection achieved by clamping a conductor with a spring-clamp termination, see figure 1



IEC 1988/02

Figure 1a – Spring-clamp connection, operated without a tool



IEC 1989/02

Figure 1b – Spring-clamp connection, operated with a tool

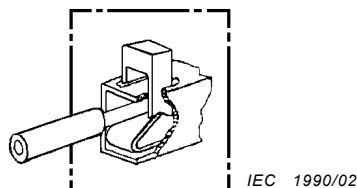


Figure 1c – Spring-clamp connection, operated with an actuating element

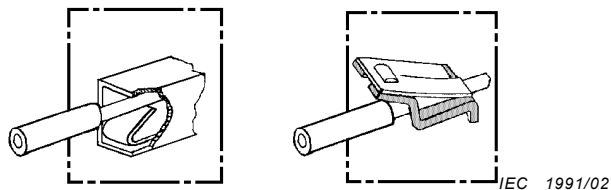


Figure 1d – Spring-clamp connections, with a push-in spring-clamp termination, with solid wires

Figure 1 – Examples of spring-clamp connections

3.3

spring-clamp terminal

terminal designed to accept a conductor for the purpose of establishing a spring-clamp connection, see figure 2

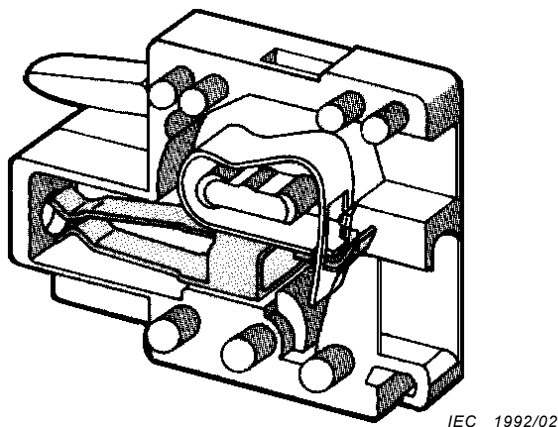


Figure 2 – Example of a spring-clamp terminal

3.4

spring-clamp connecting device

device for the electrical connection of one or more conductors comprising one or more spring-clamp terminations and, if necessary, insulation and/or auxiliary parts

3.5

actuating element

part of a spring-clamp termination or terminal to which an external force is to be applied. Movement of the actuating element provides a means for activating or deactivating the spring.

[IEV 581-11-09, modified]