

Solderless connections —

Part 3: Solderless accessible insulation displacement connections — General requirements, test methods and practical guidance

The European Standard EN 60352-3:1994 has the status of a
British Standard

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee EPL/48, Electromechanical components for electronic equipment, upon which the following bodies were represented:

- Federation of the Electronics Industry
- Ministry of Defence
- National Supervising Inspectorate

The following bodies were also represented in the drafting of the standard through subcommittees:

- Association of Manufacturers allied to the electrical and electronics industry (BEAMA Ltd.)
- British Telecommunications plc
- Society of British Aerospace Companies Limited

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National foreword

This British Standard has been prepared by Technical Committee EPL/48 and is the English language version of EN 60352-3:1994, *Solderless connections — Part 3: Solderless accessible insulation displacement connections — General requirements, test methods and practical guidance*, published by the European Committee for Electrotechnical Standardization (CENELEC). It is identical with IEC 352-3:1993, published by the International Electrotechnical Commission (IEC).

Cross-references

Publication referred to	Corresponding British Standard
IEC 50 (581):1978	BS 4727 <i>Glossary of electrotechnical, power, telecommunications, electronics, lighting and colour terms</i> Part 1. <i>Terms common to power, telecommunications and electronics</i> Group 13:1991 <i>Electromechanical components for electronic equipment</i>
EN 60068-1:1994 (IEC 68-1:1988 + corrigendum October 1988 + A1:1992)	BS EN 60068 <i>Environmental testing</i> Part 1:1995 <i>General and guidance</i>
EN 60512-1:1994 ^a (IEC 512-1:1994)	BS EN 60512 <i>Electromechanical components for electronic equipment — Basic testing procedures and measuring methods</i> Part 1:1995 <i>General</i> BS 5772 <i>Specification for electromechanical components for electronic equipment: basic testing procedures and measuring methods</i>
IEC 512-4:1976	Part 4:1979 <i>Dynamic stress tests</i>
IEC 512-5:1992	Part 5:1993 <i>Impact tests (free components), static load tests (fixed components), endurance tests and overload tests</i>
IEC 512-6:1984	Part 6:1984 <i>Climatic tests and soldering tests</i>
IEC 673:1980 + A1:1984 + A2:1986 + A3:1989	BS 6156:1981 <i>Specification for low-frequency miniature equipment wires with solid or stranded conductor, fluorinated polyhydrocarbon type insulation, single</i>

^a EN 60512-1:1994 supersedes IEC 512-1:1988 and Amendment 1:1989.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 24, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

English version

Solderless connections
Part 3: Solderless accessible insulation displacement
connections — General requirements, test methods and
practical guidance

(IEC 352-3:1993)

Connexions sans soudure
Partie 3: Connexions autodénudantes
accessibles sans soudure — Règles générales,
méthodes d'essai et guide pratique
(CEI 352-3:1993)

Lötfreie elektrische Verbindungen
Teil 3: Lötfreie zugängliche
Schneidklemmverbindungen Allgemeine
Anforderungen, Prüfverfahren und
Anwendungshinweise
(IEC 352-3:1993)

This European Standard was approved by CENELEC on 1994-05-15. 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

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Foreword

The CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 352-3:1993 could be accepted without textural changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 60352-3 on May 1994.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1995-07-15
- latest date of withdrawal of conflicting national standards (dow) 1995-07-15

Annexes designated “normative” are part of the body of the standard. In this standard, Annex ZA is normative.

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Introduction

Two standards are available on solderless insulation displacement connections:

- *Part 3: Solderless accessible insulation displacement connections — General requirements, test methods and practical guidance;*
- *Part 4: Solderless non-accessible insulation displacement connections — General requirements, test methods and practical guidance.*

This standard includes requirements, tests and practical guidance information.

Two test schedules are provided:

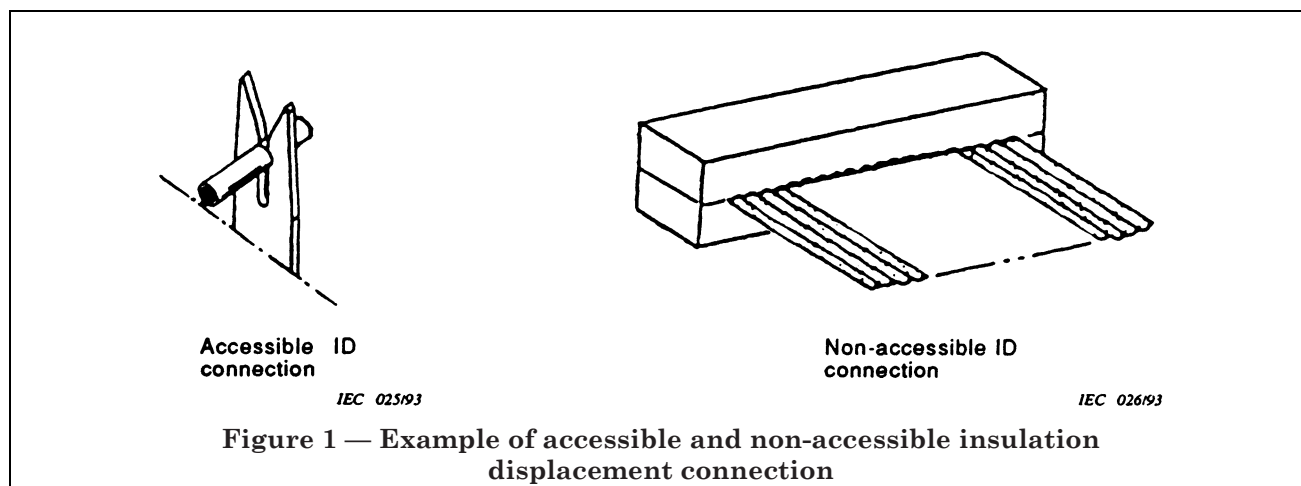
- The Basic Test Schedule applies to insulation displacement connections which conform to all requirements of section 2.

These requirements are derived from experience with successful applications of such connections.

- The Full Test Schedule applies to insulation displacement connections which do not fully conform to all requirements of section 2, for example those which are manufactured using materials or surface finishes not included in section 2.

This philosophy permits cost and time effective performance verification using a limited Basic Test Schedule for established connections and an expanded Full Test Schedule for connections requiring more extensive performance validation.

NOTE In this standard the term “insulation displacement” is abbreviated to “ID”, for example “ID connection”, “ID termination”.



Section 1. General

1 Scope

This part of IEC 352 is applicable to ID connections which are accessible for tests and measurements according to section 3 and which are made with:

- appropriately designed ID terminations;
- wires having solid round conductors of 0,25 mm to 3,6 mm nominal diameter;
- wires having stranded conductors of 0,05 mm² to 10 mm² cross-section;

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.

2 Object

To determine the suitability of accessible ID connections under specified mechanical, electrical and atmospheric conditions.

There are different designs and materials for ID terminations in use. For this reason only fundamental parameters of the termination are specified while the performance requirements of the wire and the complete connection are specified in full detail.

To provide a means of comparing test results when the tools used to make the connections are of different designs or manufacture.

3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 352. 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 352 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 50(581):1978, *International Electrotechnical Vocabulary (IEV) — Chapter 581: Electromechanical components for electronic equipment*.

IEC 68-1:1988, *Environmental testing — Part 1: General and guidance*.

IEC 68-2-60 TTD:1989, *Environmental testing — Part 2: Tests — Test Ke: Corrosion tests in artificial atmosphere at very low concentration of polluting gas(es)*.

IEC 189-3:1988, *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*.

Amendment 1 (1989)

IEC 352-4, *Solderless connections — Part 4: Solderless non-accessible insulation displacement connections — General requirements, tests methods and practical guidance (under consideration)*.

IEC 512-1:1984, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods — Part 1: General*.

Amendment 1 (1988)

IEC 512-2:1985, *Electromechanical components for electronic equipment, basic testing procedures and measuring methods — Part 2: General examination, electrical continuity and contact resistance tests, insulation tests and voltage stress tests*.

IEC 512-4:1976, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods — Part 4: Dynamic stress tests*.

IEC 512-5:1992, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods — Part 5: Impact tests (free components), static load tests (fixed components), endurance tests and overload tests*.

IEC 512-6:1984, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods — Part 6: Climatic tests and soldering tests*.

IEC 673:1980, *Low-frequency miniature equipment wires with solid or stranded conductor, fluorinated polyhydrocarbon type insulation, single*.

Amendment 3 (1989)

4 Definitions

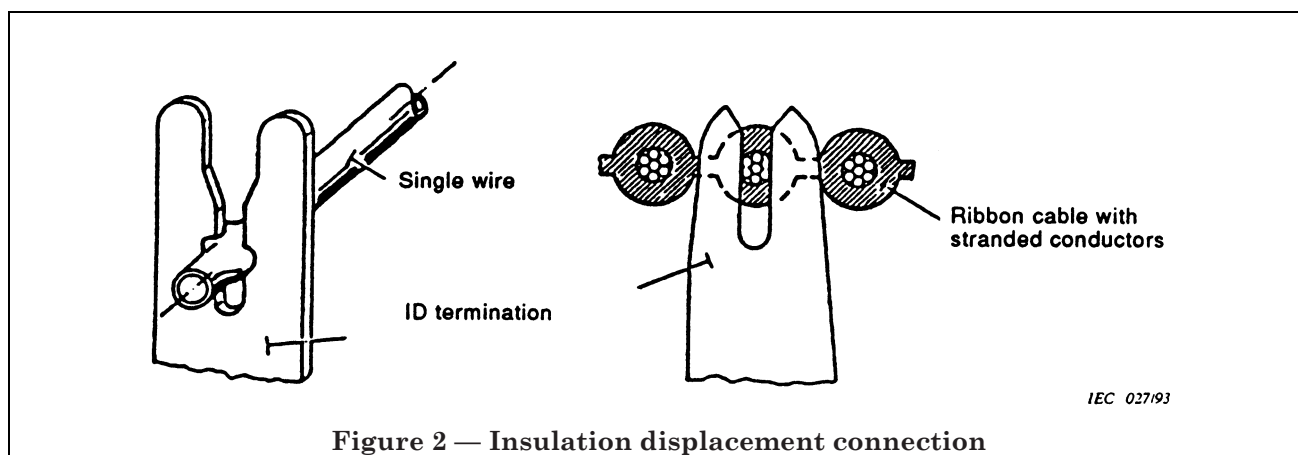
Terms and definitions used in and applicable to this part of IEC 352 are included in IEC 50(581).

IEC 512-1 also contains some applicable terms and definitions.

For the purpose of this part of IEC 352, the following additional terms and definitions shall apply.

4.1 Insulation displacement connection (ID connection)

A solderless electrical connection made by inserting a single wire into a precisely controlled slot in a termination such that the sides of the slot displace the insulation and deform the conductor of a solid wire or strands of stranded wire to produce a gas-tight connection.



4.1.1

accessible insulation displacement connection (accessible ID connection)

an ID connection in which it is possible to access test points for carrying out mechanical tests (for example, transverse extraction force) and electrical measurements (for example, contact resistance) without deactivation of any design feature intended to establish and/or maintain the ID connection

4.1.2

non-accessible insulation displacement connection (non-accessible ID connection)

(See IEC 352-4, under consideration)

an ID connection in which it is not possible to access test points for carrying out mechanical tests such as transverse extraction force and some electrical measurements (for example, contact resistance) without deactivation of any design feature intended to establish and/or maintain the ID connection, mainly where the ID connection is enclosed in a component

4.2 Insulation displacement termination (ID termination)

A termination designed to accept a wire for the purpose of establishing an ID connection.

4.2.1

reusable insulation displacement termination (reusable ID termination)

an ID termination that can be used more than once

4.2.2

non-reusable insulation displacement termination (non-reusable ID termination)

an ID termination that can be used only once