

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Solderless connections –
Part 6: Insulation piercing connections – General requirements, test methods
and practical guidance**

**Connexions sans soudure –
Partie 6: Connexions à percement d'isolant – Exigences générales, méthodes
d'essai et guide pratique**



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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	9
4 Requirements	12
4.1 Workmanship.....	12
4.2 Tools	12
5 Pre-requisites for the qualification test schedule.....	12
5.1 Insulation piercing terminations.....	12
5.1.1 Materials	12
5.1.2 Dimensions.....	12
5.1.3 Surface finishes.....	13
5.1.4 Design features	13
5.2 Insulated conductors.....	13
5.2.1 General	13
5.2.2 Materials	13
5.2.3 Dimensions.....	13
5.2.4 Surface finishes.....	13
5.2.5 Insulation.....	13
5.3 Insulation piercing connections	14
6 Testing.....	14
6.1 Overview.....	14
6.2 General.....	14
6.3 Standard conditions for testing.....	14
6.4 Preconditioning	14
6.5 Recovery	15
6.6 Mounting of the specimen	15
7 Tests.....	15
7.1 General examination.....	15
7.2 Mechanical tests.....	15
7.2.1 Tensile strength.....	15
7.2.2 Bending of the wire/cable	15
7.2.3 Vibration.....	17
7.3 Electrical tests	18
7.3.1 General	18
7.3.2 Contact resistance.....	18
7.3.3 Electrical load and temperature	20
7.4 Climatic tests	20
7.4.1 General	20
7.4.2 Rapid change of temperature.....	21
7.4.3 Climatic sequence	21
7.4.4 Flowing mixed gas corrosion test.....	21
7.4.5 Damp heat cyclic	21
8 Test schedules	22
8.1 General.....	22

8.1.1	Overview	22
8.1.2	Insulation piercing connections with terminations suitable for a range of wire diameters	22
8.1.3	Multipole components	22
8.2	Qualification test schedule	23
8.2.1	General	23
8.2.2	Initial examination.....	23
8.2.3	Testing of insulation piercing connections.....	23
8.3	Application test schedule	25
8.3.1	General	25
8.3.2	Initial examination.....	25
8.3.3	Testing of insulation piercing connections.....	25
8.4	Flow charts	26
Annex A (informative)	Practical guidance.....	29
A.1	General information on insulation piercing terminations	29
A.2	Current-carrying capacity	29
A.3	Tool information.....	29
A.4	Termination information	30
A.4.1	General	30
A.4.2	Materials	31
A.4.3	Surface finishes.....	31
A.4.4	Dimensions.....	31
A.5	Conductor information.....	31
A.5.1	General	31
A.5.2	Material	31
A.5.3	Dimensions.....	31
A.5.4	Surface finishes.....	31
A.5.5	Insulation.....	31
A.5.6	Stripping information for cables (cords) and wires.....	31
A.6	Connection information	32
A.7	Axial load.....	33
Bibliography	34
Figure 1	– Example of an integrated insulation piercing connection (one connection shown).....	10
Figure 2	– Example of an insulation piercing connection with insulated flat conductor.....	11
Figure 3	– Example of an insulation piercing connection in a barrel with stranded wires	11
Figure 4	– Test arrangement, bending of single wire.....	16
Figure 5	– Test arrangement, bending of flat conductor, flat flexible circuitry	17
Figure 6	– Test arrangement, vibration	17
Figure 7	– Test arrangement, contact resistance (measuring method for tinsel wire, flat conductor, flat flexible circuitry).....	19
Figure 8	– Test arrangement, contact resistance (measuring method for stranded wires).....	19
Figure 9	– Qualification test schedule (see 8.2)	27
Figure 10	– Application test schedule (see 8.3).....	28
Figure A.1	– Example of an insulation piercing termination as an integral part of a component.....	30

Figure A.2 – Example of an insulation piercing termination for flat conductor	30
Figure A.3 – Example of an insulation piercing termination for stranded wires	30
Figure A.4 – Examples of round, flat and flat oval sheath cable	32
Figure A.5 – Example of a flexible circuitry	32
Figure A.6 – Example of an integrated insulation piercing connection	32
Figure A.7 – Example of an integrated insulation piercing connection in a barrel with stranded wires	33
Table 1 – Vibration, preferred test severities	18
Table 2 – Contact resistance of insulation piercing connections, maximum permitted values	20
Table 3 – Number of specimens required	22
Table 4 – Qualification test schedule – Test group A	23
Table 5 – Qualification test schedule – Test group B	23
Table 6 – Qualification test schedule – Test group C	24
Table 7 – Qualification test schedule – Test group D	25
Table 8 – Application test schedule – Test group 1	26
Table 9 – Application test schedule – Test group 2	26
Table A.1 – Axial load F	33

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SOLDERLESS CONNECTIONS –**Part 6: Insulation piercing connections –
General requirements, test methods and practical guidance**

FOREWORD

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IEC 60352-6 has been prepared by subcommittee 48B: Electrical connectors, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment. This is an International Standard.

This second edition cancels and replaces the first edition published in 1997. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) axial load in 7.2.2 provided in a table in Annex A rather than as percentage of breaking load of the wire;
- b) different approach to measure contact resistance provided in 7.3.2.3.

The text of this International Standard is based on the following documents:

Draft	Report on voting
48B/3001/FDIS	48B/3009/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 60352 series, published under the general title *Solderless connections*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

INTRODUCTION

This part of IEC 60352 applies to solderless connections made by insulation piercing (IP) and includes requirements, tests and practical guidance information for such connection technology.

Two test schedules are provided:

- a qualification test schedule that applies to insulation piercing connections which conform to all pre-requisites of Clause 5, which are derived from experience with successful applications of such insulation piercing connections;
- an application test schedule that applies to insulation piercing connections made with suitable IP termination which are integral part of a component and are already fulfilling the pre-requisites of Clause 5.

IEC Guide 109 advocates the need to minimize the impact of a product on the natural environment throughout the product life cycle. IEC 62430 provides principles, requirements and guidance to implement environmentally conscious design.

It is understood that some of the materials permitted in this document may have a negative environmental impact. As technological advances lead to acceptable alternatives to these materials, they will be eliminated from this document.

SOLDERLESS CONNECTIONS –

Part 6: Insulation piercing connections – General requirements, test methods and practical guidance

1 Scope

This part of IEC 60352 is applicable to insulation piercing connections made with stranded wires and tinsel wires, insulated flat conductors and flat flexible circuitries for use in electrical and electronic equipment.

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 document is to:

- determine the suitability of insulation piercing connections under specified mechanical, electrical, and atmospheric conditions;
- provide a means of comparing test results when the tools used to make the connections, if any, are of different designs or manufacture.

There are different designs and materials for insulation piercing terminations in use. For this reason, only fundamental parameters of the termination, the performance requirements of the conductor and the complete connection are specified in this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60068-1:2013, *Environmental testing – Part 1: General and guidance*

IEC 60512-1:2018, *Connectors for electrical and electronic equipment – Tests and measurements – Part 1: Generic specification*

IEC 60512-1-1:2002, *Connectors for electronic equipment – Tests and measurements – Part 1-1: General examination – Test 1a: Visual examination*

IEC 60512-1-2:2002, *Connectors for electronic equipment – Tests and measurements – Part 1-2: General examination – Test 1b: Examination of dimension and mass*

IEC 60512-2-1:2002, *Connectors for electronic equipment – Tests and measurements – Part 2-1: Electrical continuity and contact resistance tests – Test 2a: Contact resistance – Millivolt level method*

IEC 60512-2-2:2003, *Connectors for electronic equipment – Tests and measurements – Part 2-2: Electrical continuity and contact resistance tests – Test 2b: Contact resistance – Specified test current method*