IEC 60512-16-14

Edition 1.0 2008-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Connectors for electronic equipment – Tests and measurements – Part 16-14: Mechanical tests on contacts and terminations – Test 16n: Bending strength, fixed male tabs

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Connecteurs pour équipements électroniques – Essais et mesures – Partie 16-14: Essais mécaniques des contacts et des sorties – Essai 16n: Résistance à la flexion des languettes fixes



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE
CODE PRIX F

ICS 31.220.10

ISBN 2-8318-9883-8

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CONNECTORS FOR ELECTRONIC EQUIPMENT – TESTS AND MEASUREMENTS –

Part 16-14: Mechanical tests on contacts and terminations – Test 16n: Bending strength, fixed male tabs

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International Standard IEC 60512-16-14 has been prepared by subcommittee 48B, Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

This standard cancels and replaces Test 16n of IEC 60512-8, issued in 1993. This standard is to be read in conjunction with IEC 60512-1 and IEC 60512-1-100 which explains the structure of the IEC 60512 series.

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

FDIS	Report on voting
48B/1889/FDIS	48B/1922/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.

A list of all parts of the IEC 60512 series, under the general title *Connectors for electronic equipment – Tests and measurements*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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CONNECTORS FOR ELECTRONIC EQUIPMENT – TESTS AND MEASUREMENTS –

Part 16-14: Mechanical tests on contacts and terminations – Test 16n: Bending strength, fixed male tabs

1 Scope and object

This part of IEC 60512, when required by the detail specification, is used for testing connectors within the scope of IEC technical committee 48. It may also be used for similar devices when specified in a detail specification.

The object of this part of IEC 60512 is to detail a standard test method to determine the ability of a fixed male tab and its fixing to withstand a specified bending stress. If so specified in the detail specification, forces other than bending may be applied.

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

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3 Preparations

3.1 Preparation of specimen

The specimen shall consist of a connector fitted with one or more male tabs. They may be wired if so specified in the detail specification. Any preconditioning given in the detail specification shall be applied. Three such specimens shall be prepared.

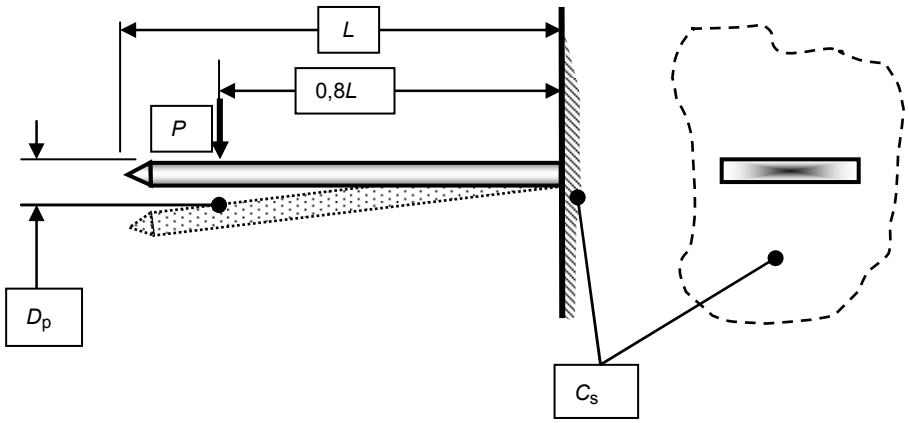
3.2 Equipment

For the application of the axial loads, a suitable device able to provide the controls on the loads (intensity, rate of increase, time of constant load application) shall be required (e.g.: a universal materials testing machine).

NOTE If the detail specification requires special preconditioning of the specimen, all the necessary equipment detailed in the relevant documents describing such conditioning would also be required

3.3 Mounting

If mounting of the specimen is appropriate, it shall be as specified in the detail specification.



Key

L	Length of the contact under test, tip to component surface.
P	Point and direction of application of force
D_p	Permanent displacement of the tip of the specimen
C_s	Component surface

Figure 1 – Point of application of the force

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4 Test method

4.1 General

A single force P shall be applied to the fixed tab according to Figure 1. The force shall be steadily increased from zero to that specified in the detail specification. This force shall be maintained for 1 minute.

The force shall be removed, and the (permanent) displacement of the tab shall be measured. Permanent displacement is defined as the difference between the initial position of the tab before application of any force and its position after all force is removed.

This shall be repeated, on an adjacent (new) tab, with the force being applied in the opposite direction.

At least 10 tabs shall be selected at random from the 3 specimens, of these, at least one tab shall be near the periphery, and one, at or near, the centre of the connector insert or housing. For inserts or housings having 3 or less tabs, all tabs shall be tested.

4.2 Measurements and requirements

4.2.1 Before testing

Visual examination according to IEC 60512-1-1 shall be carried out. There shall be no defects, which would impair the validity of the test.

4.2.2 During testing

The deflection and permanent displacement of the component, measured at the application point of the force, shall be recorded.

NOTE In the case of a tab being made from a highly resilient material (e.g. spring steel or beryllium copper) the displacement may be large whilst the permanent displacement is negligible. In the case of a tab being held in a plastic material, recovery of deformation of that material may take place over a period. Furthermore, as the properties of such plastic materials may vary considerably with temperature, these tests will normally be done at laboratory temperatures (NTP), any deviation from this should be given in the relevant detail specification.

The permanent set shall not exceed any value given in the detail specification.

4.2.3 After testing

Visual examination according to IEC 60512-1-1 shall be carried out. There shall be no defects that would impair the normal functioning of the connector. This may be judged by a mating test with its counterpart

5 Details to be specified

When this test is required by a detail specification, the following shall be given therein:

a) whether preconditioning is required;
b) whether the specimen is to be wired, and if so, details of this;
c) whether special mounting of the specimen is required;
d) force to be applied and orientation with respect to the tab;
e) allowable permanent set;
f) number of specimens to be tested, if other than 3;
g) any deviation from the standard test method.

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