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INTERNATIONAL STANDARD

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

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

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CONNECTORS FOR ELECTRONIC EQUIPMENT – TESTS AND MEASUREMENTS –

Part 16-16: Mechanical tests on contacts and terminations – Test 16p: Torsional strength, fixed male tabs

FOREWORD

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International Standard IEC 60512-16-16 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 16p 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/1890/FDIS	48B/1923/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 16-16: Mechanical tests on contacts and terminations – Test 16p: Torsional strength, fixed male tabs

1 Scope and object

This part of IEC 60512, when required by the detail specification, is used for testing electomechanical components 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 torque. If so specified in the detail specification, forces other than torsional 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

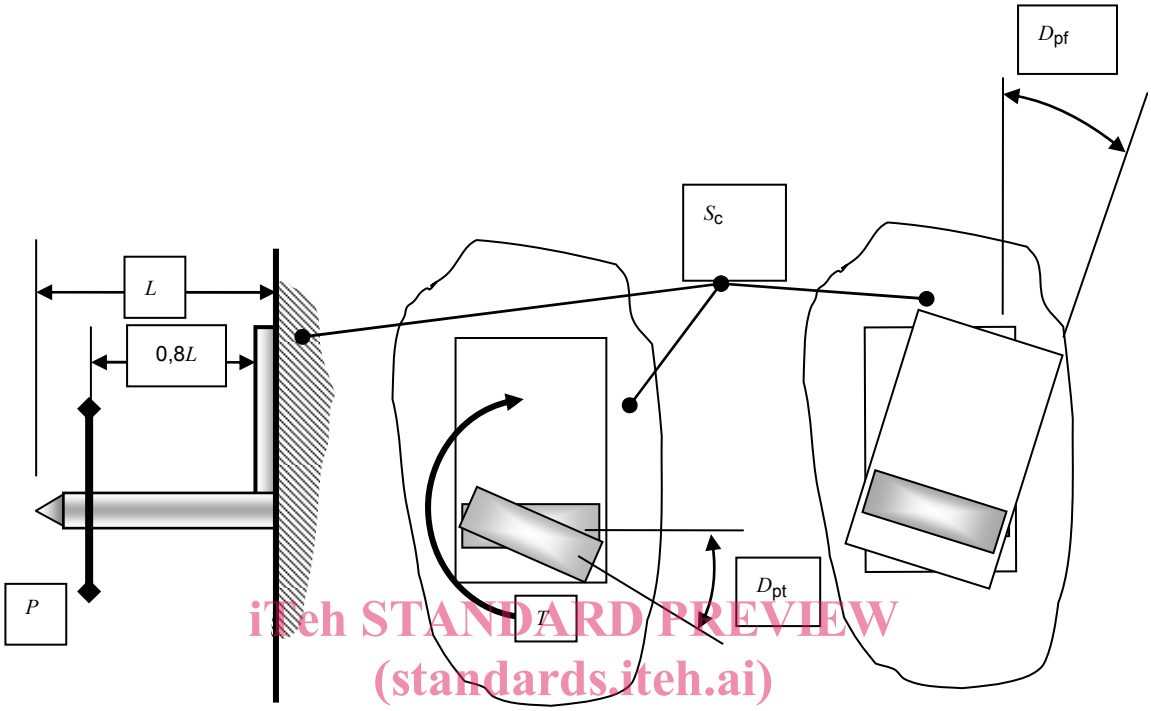
The specimens shall consist of a connector fitted with one or more male tabs. It may be wired if so specified in the detail specification. Any preconditioning given in the detail specification shall be applied. Three such specimens shall be prepared.

3.2 Equipment

A universal testing machine suitable for the test procedure detailed in Clause 4 shall be required, equipped with all relevant test fixtures needed to hold the specimen under test.

3.3 Mounting

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



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Key

L	Length of the contact under test, tip to component surface
T	Torque
P	Plane of application of torque
D_{pt}	Permanent displacement of the tip of the specimen (tab)
D_{pf}	Permanent displacement of the tip of the specimen (fixing)
S_c	Surface of the component

Figure 1 – Application of the torque

4 Test method

4.1 General

A torque T shall be applied to the fixed tab in the direction specified in Figure 1. The torque shall be steadily increased from zero to that specified in the component specification. This torque shall be maintained for 1 minute.

The torque 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 torque and its position after all torque is removed.

At least 10 tabs shall be selected at random from the 3 specimens provided that 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. This shall be repeated, on an adjacent (new) tab, with the torque being applied in the opposite direction.

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 displacement and permanent displacement of the component, measured at the plane of application of the torque shall be measured.

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 displacement 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), and any deviation from this should be given in the relevant detail specification.

The permanent displacement shall not exceed any value given in the component 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 shall be judged by a mating test with its counterpart.

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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) torque to be applied and orientation with respect to the tab;
e) allowable permanent set;
f) number of specimens to be tested shall be 3 unless otherwise specified;
g) any deviation from the standard test method.

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