

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Fibre optic interconnecting devices and passive components – Basic test and measurement procedures –
Part 2-6: Tests – Tensile strength of coupling mechanism**

**Dispositifs d'interconnexion et composants passifs à fibres optiques –
Méthodes fondamentales d'essais et de mesures –
Partie 2-6: Essais – Résistance à la traction du mécanisme de couplage**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING DEVICES
AND PASSIVE COMPONENTS –
BASIC TEST AND MEASUREMENT PROCEDURES –****Part 2-6: Tests – Tensile strength
of coupling mechanism**

FOREWORD

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International Standard IEC 61300-2-6 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 1995. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition:

- a) Rewriting of the entire composition according to the latest IEC Directives;
- b) Relaxing pre-conditioning hours;
- c) Adding the recommended severity value table for connectors;
- d) Reconsidering the details to be specified section.

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

FDIS	Report on voting
86B/3092/FDIS	86B/3130/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 the parts in the IEC 61300 series, published under the general title, *Fibre optic interconnecting and passive components – Basic test and measurement procedures*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability 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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- withdrawn,
- replaced by a revised edition, or
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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 2-6: Tests – Tensile strength of coupling mechanism

1 Scope

This part of IEC 61300 describes a test to ensure that the coupling mechanism of a connector set or connector and device combination will withstand the axial loads likely to be applied during normal service.

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 61300-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 1: General and guidance*

IEC 61300-3-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-1: Examinations and measurements – Visual examination*

IEC 61753-1, *Fibre optic interconnecting devices and passive components performance standard – Part 1: General and guidance for performance standards*

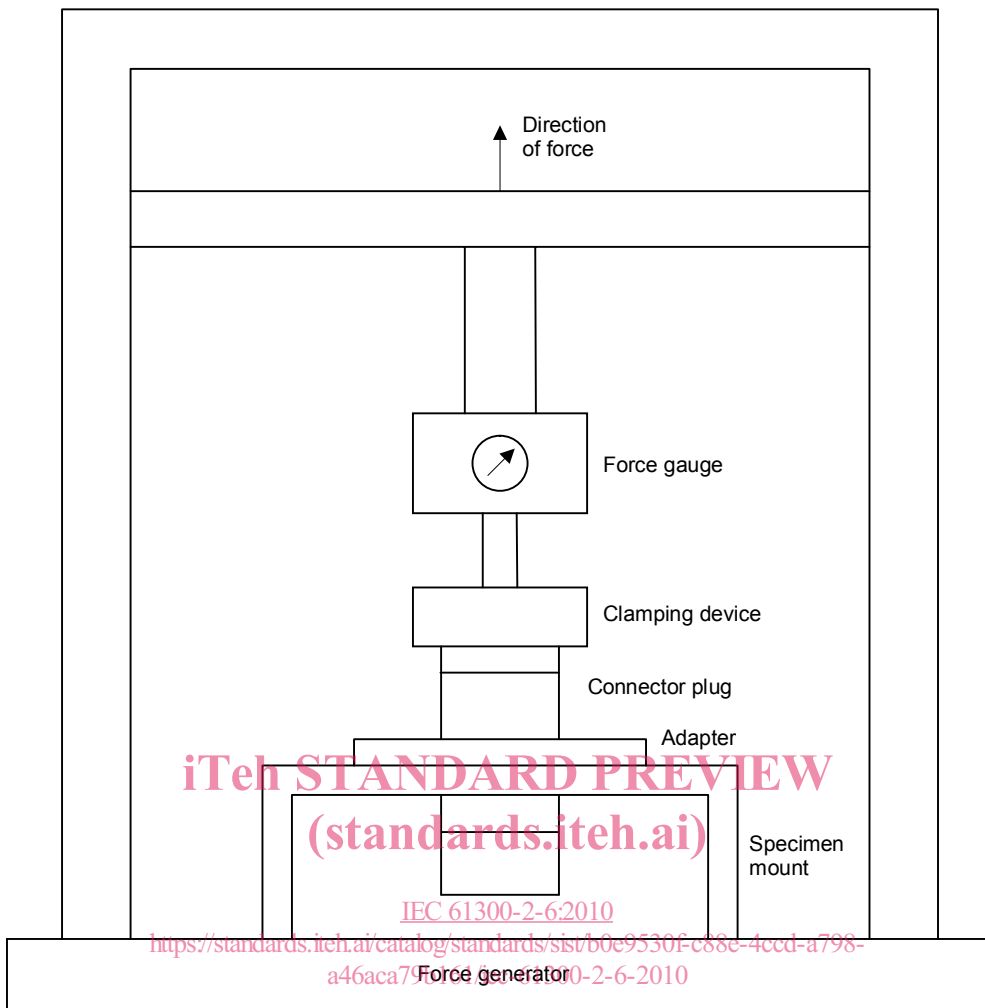
3 General

A tensile load is smoothly applied to a mated connector set or connector and device combination in a direction that will separate the components. The load is normally applied between the connector plug and the adapter or between the connector plug and the device being tested.

4 Apparatus

4.1 General

The test apparatus shall be capable of applying an axial load between a connector plug or coupling mechanism and an adapter or device. An example of a test apparatus is shown in Figure 1. Some or all of the following apparatus components will be required.



IEC 2815/10

Figure 1 – Example of test apparatus

4.2 Force generator

The force generator may be any device or apparatus capable of smoothly applying the specified force at the specified rate.

4.3 Force gauge

A force gauge of specified accuracy shall be used to measure the axial force applied to the device under test (DUT).

4.4 Clamping device

A suitable clamping device shall be used to couple the force generator to the connector plug or coupling mechanism. Care shall be taken in the design and use of the clamping device to ensure that it does not apply compressive forces which might influence the performance of the connector plug or coupling mechanism.

4.5 Specimen mount

Mount the specimen according to normal mounting procedures.

4.6 Torque wrench

A torque wrench may be required to assemble screw type connectors in accordance with the manufacturer's instructions.

5 Procedure

5.1 Prepare specimens

Mate the specimens according to the manufacturer's instructions. For screw type couplings, use a torque wrench to ensure that the couplings are tightened to the proper value.

5.2 Pre-conditioning

Unless otherwise specified, pre-condition each prepared specimen for 2 h at the standard test conditions specified in IEC 61300-1.

5.3 Initial examinations and measurements

Complete initial examinations and measurements on the specimen shall be made as required by the relevant specification. Visual examination shall be done according to IEC 61300-3-1.

5.4 Mount DUT

Securely mount one part of the DUT, usually the connector adapter, switch, attenuator, etc. to the stationary portion of the test fixture. Fix the other part of the device under test, usually the connector plug or coupling mechanism, to the movable portion of the force generator.

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5.5 Apply load

Smoothly apply the tensile load, as recommended in Table 1 or the specified rate, up to the specified value and specified duration.

5.6 Final examinations and measurements

Remove the tensile load from the specimen and the specimen from the test mounting. Unless otherwise specified, visually examine the specimen and its component parts in accordance with IEC 61300-3-1. Check for evidence of cracking, permanent deformation or other damage which might impair its function, and against any other pass/fail criteria specified in the relevant specification.

6 Severity

The severity of the test is dependant upon the magnitude of the tensile load and to a lesser extent to the rate of application and duration of the load. The magnitude, rate of application and duration of the load shall be given in the relevant specification. Recommended values of the test parameters are given in Table 1.

Table 1 – Recommended severity value

Category ¹	Tensile load (N)	Rate of application (N/s)	Duration (s)
C	40 ± 1	2	60
U, E	40 ± 1	2	120

NOTE 1 Category is defined in IEC 61753-1.

7 Details to be specified

The following details, as applicable, shall be given in the relevant specification:

- magnitude and rate of application of the tensile load;
- coupling torque prior to testing, if necessary;
- fibre type and length;
- pre-conditioning procedure;
- recovery procedure;
- optically functioning or non-functioning;
- initial examinations and measurements and performance requirements;
- examinations and measurements during test and performance requirements, if required;
- final examinations and measurements and performance requirements;
- optical measurement method, if necessary;
- deviations from the test procedure;
- additional pass/fail criteria.

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