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**Fibre optic interconnect devices and passive components – Basic test and measurement procedures –
Part 3-48: Examinations and measurements – Spring compression force of the coupling sleeve for rectangular ferrule multi-fibre connectors**

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**Dispositifs d'interconnexion et composants passifs à fibres optiques –
Procédures fondamentales d'essais et de mesures –
Partie 3-48: Examens et mesures – Force de compression du ressort du manchon de couplage des connecteurs multifibres munis de férules rectangulaires**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECT DEVICES AND PASSIVE COMPONENTS –
BASIC TEST AND MEASUREMENT PROCEDURES –**
**Part 3-48: Examinations and measurements –
Spring compression force of the coupling sleeve
for rectangular ferrule multi-fibre connectors**

FOREWORD

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International Standard IEC 61300-3-48 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This bilingual version (2014-03) corresponds to the monolingual English version, published in 2013-07.

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

CDV	Report on voting
86B/3522/CDV	86B/3601/RVC

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

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 61300 series, published under the general title, *Fibre optic interconnecting devices 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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FIBRE OPTIC INTERCONNECT DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 3-48: Examinations and measurements – Spring compression force of the coupling sleeve for rectangular ferrule multi-fibre connectors

1 Scope

The purpose of this part of IEC 61300 is to describe the procedure required to measure the spring compression force of the coupling sleeve for rectangular ferrule multi-fibre connectors.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

None.

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3 General description

The measurement of the coupling sleeve compression force is made with the optical connector fixed. Then the coupling sleeve is moved to the stipulated position to measure the coupling sleeve compression force with a force gauge.

4 Apparatus

4.1 General

The apparatus consists of the following elements. See Figures 1 and 2.

4.2 Fixture

The fixture shall be able to hold the optical connector without influencing the measurement of the spring compression force of the coupling sleeve. The fixture shall be able to hold the optical connector with a force larger than the stipulated coupling sleeve compression force. If measurement is repeated, the location of the optical connector shall not be changed.

4.3 Force transfer cup

The force transfer cup shall push only the coupling sleeve without contacting any other elements of the optical connector.

4.4 Force gauge

The force gauge shall be able to measure at least from 2,9 N to 6,9 N (compression force range). The force gauge is placed so that its pushing direction is the same as the coupling sleeve steering direction.

4.5 Sliding stage

The sliding stage shall not impede the location of the force gauge (4.4) and should be placed so that it can move in the same direction as the coupling sleeve.

4.6 Observation instrument

The observation instrument shall have sufficient magnification to verify that the coupling sleeve is located at the stipulated location within a $\pm 0,1$ mm margin.

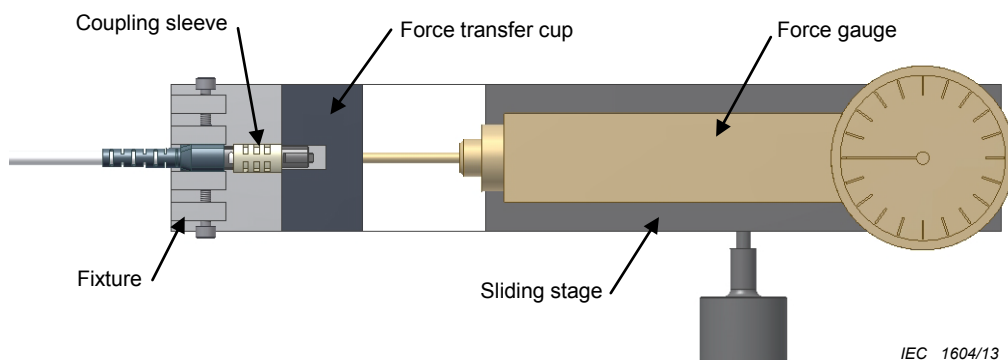


Figure 1a – Top view

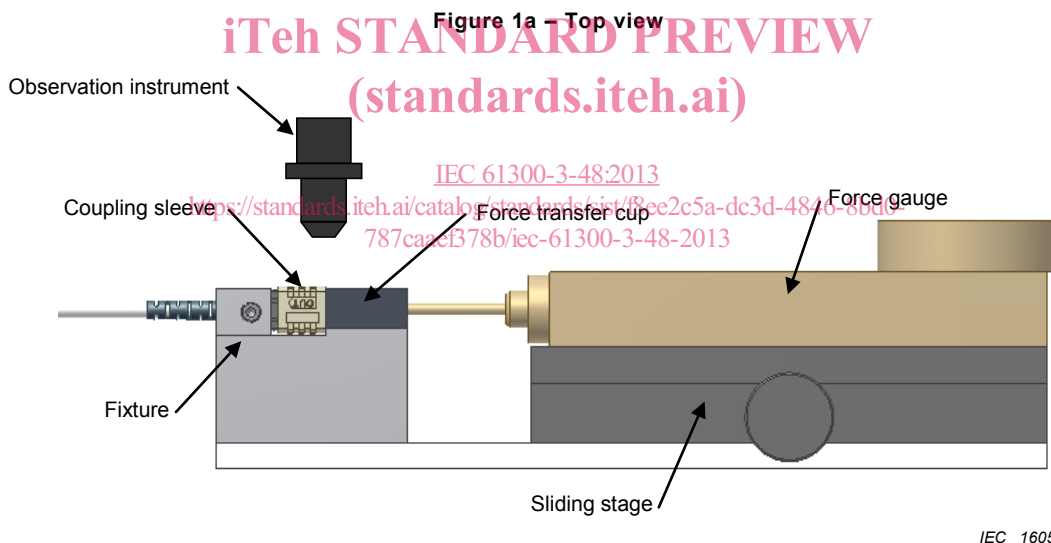


Figure 1b – Side view

Figure 1 – Measurement of coupling sleeve compression force

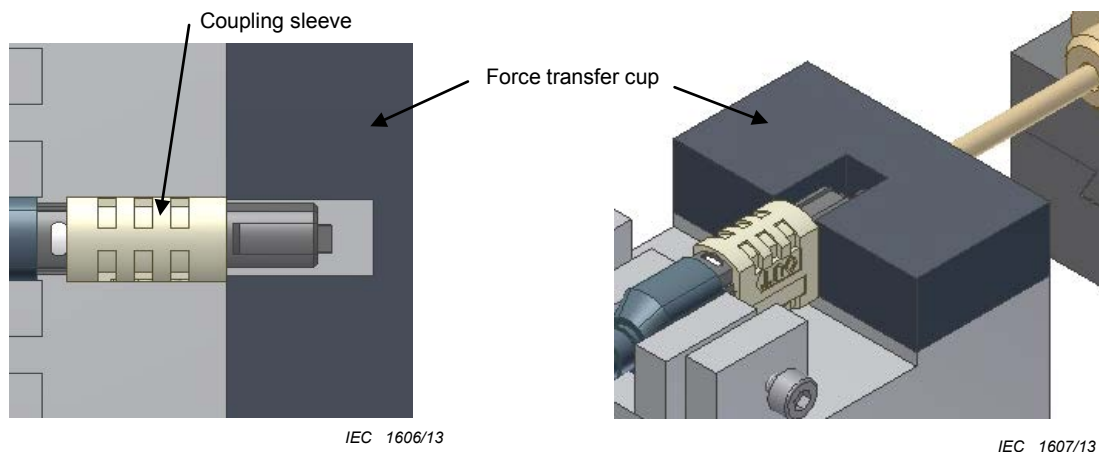


Figure 2a – Top view

Figure 2b – Perspective view

Figure 2 – Details of force transfer

5 Procedure

The procedure is as follows:

- a) Set the optical connector under test into the fixture.
- b) Have the pushing part contact the edge of the coupling sleeve under test and confirm that it is located such that only the coupling sleeve is pushed, checking that the force transfer cup does not interfere with the optical connector.
- c) Set the observation instrument to confirm that the coupling sleeve is properly compressed to the intended position.
- d) Use the force gauge to set the force transfer cup and coupling sleeve at the measurement position. Confirm the location of the coupling sleeve with the observation instrument. When the edge of the coupling sleeve is within a $\pm 0,1$ mm range from the measurement position, read the value of the force gauge.

6 Details to be specified

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

- maximum allowed compression force for the force gauge;
- pre-conditioning procedure;
- recovery procedure;
- acceptance/failure criteria;
- number of times the test is performed on each component;
- any deviation from measuring procedure;
- measurement uncertainty.

Annex A
(informative)

Example of positions for MPO connector (IEC 61754-7)

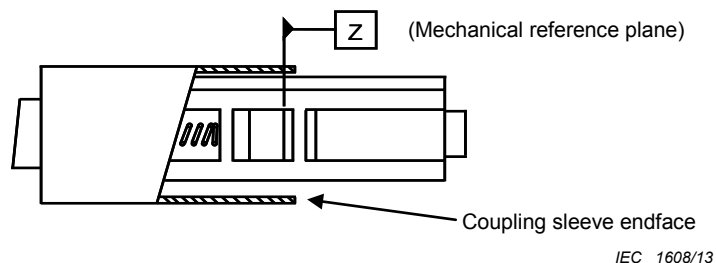


Figure A.1a – Side view

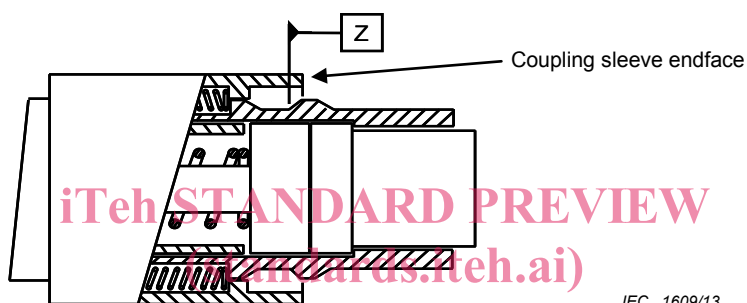


Figure A.1b – Top view

Figure A.1 – Position of coupling sleeve before measurement

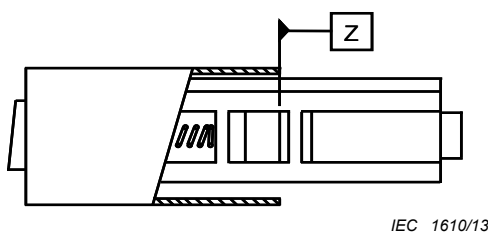


Figure A.2a – Side view

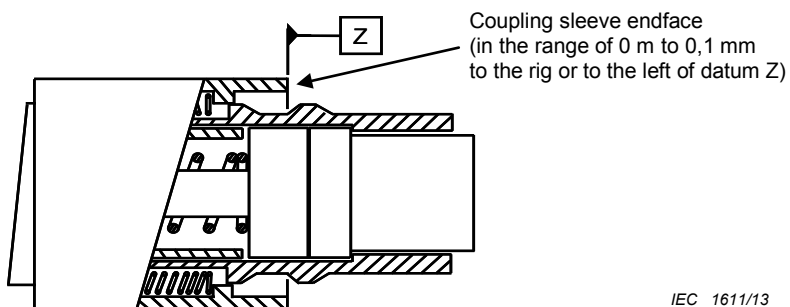


Figure A.2b – Top view

Figure A.2 – Position of coupling sleeve during measurement

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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 61754-7, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 7: Type MPO connector family*

IEC 61754-10, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 10: Type Mini-MPO connector family*

IEC 61754-18, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 18: Type MT-RJ connector family*

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