

INTERNATIONAL STANDARD

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**Fibre optic interconnecting devices and passive components – Basic test and measurement procedures –
Part 3-46: Measurement – Bore diameter for guide pin in MT ferrules**

**Dispositifs d'interconnexion et composants passifs à fibres optiques –
Méthodes fondamentales d'essais et de mesures –
Partie 3-46: Mesure – Diamètre d'alésage pour broche de guidage dans les
ferrules MT**



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IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING DEVICES
AND PASSIVE COMPONENTS –
BASIC TEST AND MEASUREMENT PROCEDURES –**

**Part 3-46: Measurement –
Bore diameter for guide pin in MT ferrules**

FOREWORD

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

CDV	Report on voting
86B/3076/CDV	86B/3165/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.

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

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 INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 3-46: Measurement – Bore diameter for guide pin in MT ferrules

1 Scope

The purpose of this part of IEC 61300 is to provide a standard for the measurement of guide pin bore diameters in thermoplastic and thermoset MT ferrules specified in IEC 61754-5.

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

IEC 61754-5, *Fibre optic connector interfaces - Part 5: Type MT connector family*
[IEC 61300-3-46:2011](https://standards.iteh.ai/catalog/standards/sist/ae976d5a-72cd-4874-b348-23f8e9da9cd4/iec-61300-3-46-2011)

3 General description

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3.1 Pin specifications

See Table 1 for pin specifications.

Table 1 – Pin specifications

Material	Tungsten Carbide Steel
Pin Diameter ranges (mm)	0,69 895 to 0,69 905
	0,69 905 to 0,69 915
	0,69 915 to 0,69 925
	0,69 925 to 0,69 935
	0,69 935 to 0,69 945
	0,69 945 to 0,69 955
	0,69 955 to 0,69 965
	0,69 965 to 0,69 975
	0,69 975 to 0,69 985
	0,69 985 to 0,69 995
0,69 995 to 0,70 005	
Cylindricity	100,0 nm or better
Surface finish	0,2 µm

3.2 Test conditions

See Table 2 for test conditions.

Table 2 – Test conditions

Temperature (T)	Relative Humidity (RH)	Total Assembly Mass g
21,0 °C to 25,0 °C	50,0% RH ± 10,0 %	100,0 +/- 5,0 g

3.3 Apparatus

The apparatus shall include the following elements:

Traceable, calibrated gauge pins of tungsten carbide steel, 0,698 95 mm to 0,700 05 mm in 100 nm increments;

Pin vice with rod and platform to hold calibrated mass elements, the mass of which is sufficient to make the entire assembly 100,0 g total.

Fixturing should ensure that the assembly is free to hang vertically during testing.

Both pins and test parts should be as clean as possible to ensure an accurate measurement.

4 Procedure

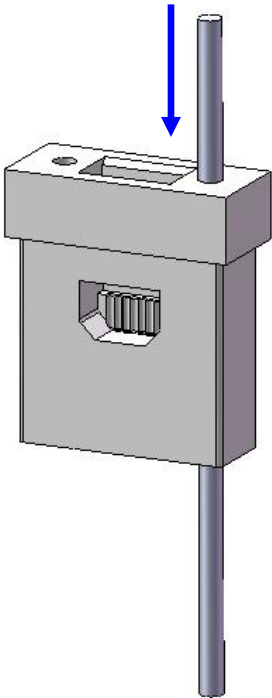
[IEC 61300-3-46:2011](#)

Parts should be preconditioned using the conditions in 3.2 for a minimum of 24 hours.

Once conditioned, a calibrated gauge pin is pushed into the ferrule until it clears the ferrule end as shown in Figure 1. Start with a pin that should fit freely in the part under test. Rear entry is recommended where possible to reduce the risk of ferrule end face damage. (For fully assembled product, front entry may be used as an alternative to disassembly as shown in Figure 3.) After the pin engages the full bore ID length, the pin vice is secured to the calibrated gauge pin/ferrule vice assembly as shown in Figure 2. The mass is gradually released, pulling the pin through the bore.

This procedure is repeated using increasingly larger pins until the 100,0 g ± 5,0 g mass cannot freely pull the pin out of the bore. Once this state is reached, the previous pin's diameter is recorded as the effective diameter of the guide pin bore.

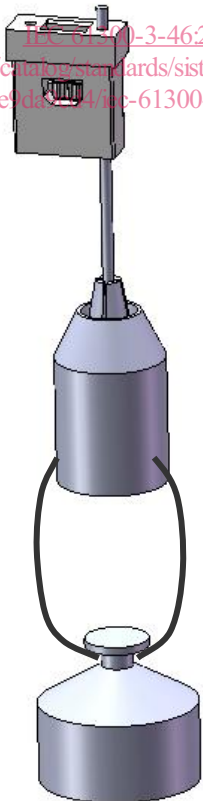
Repeat the above procedure for the opposite hole.



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Figure 1 – Gauge pin through ferrule
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IEC 1209/11

Figure 2 – An example of a complete measurement apparatus with ferrule

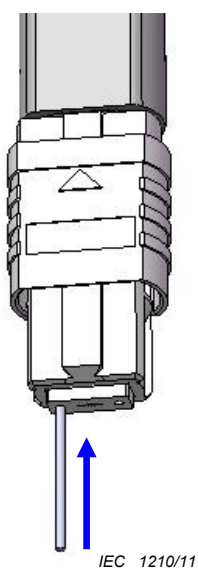


Figure 3 – An example of front loading the pin in an assembled connector

5 Post test examination

After the test is completed, visually examine the specimens in accordance with IEC 61300-3-1. Check for damage to the exit region of the guide pin bore breakage, chipping or scratching of the ferrule face

6 Details to be specified

- Test conditions
- Size range of pins used
- Final size of each bore

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