



BSI Standards Publication

## Fibre-reinforced plastics — Determination of the plain-pin bearing strength

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## National foreword

This British Standard is the UK implementation of ISO 12815:2025. It supersedes BS ISO 12815:2013, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/42, Fibre reinforced thermosetting plastics and prepregs.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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**International  
Standard**

**ISO 12815**

**Fibre-reinforced plastics —  
Determination of the plain-pin  
bearing strength**

*Plastiques renforcés de fibres — Détermination de la résistance  
au matage au moyen d'une goupille ordinaire*

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## Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 13, *Composites and reinforcement fibres*.

This second edition cancels and replaces the first edition (ISO 12815:2013), which has been technically revised.

The main changes are as follows:

- the measurement of the roundness of the hole has been added;
- the range of testing speed has been expanded;
- the roundness of the hole in the test reports has been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

In preparing this harmonized version to other similar methods, such as prEN 6037 and ASTM D 5961, harmonization with open-hole tests has been achieved where relevant (e.g. specimen and hole size). The method is applicable to all current and future fibre-reinforced plastic composites meeting the requirements of this document.

The method described in this document uses the maximum load to define the plain-pin laminate bearing strength. This point is well-defined and has been shown to be at a similar level to the less easily defined, initial failure in the similar “torqued bolt” test(s). In the torqued bolt test, the load can increase after the bearing failure (up to  $\times 2$ ), as the failed material is jammed against the bolt, washers and loading jigs. The property determined applies only to the laminate lay-up tested.

The strength properties of “bolted” joints are dependent on the actual conditions involved for the joint being assessed. This includes initial bolt torque (including any load lost in bolt threads), effect of relaxation due to visco-elastic effects, effect of hot/wet conditioning, washer size/over-size, bolt material/rivet details and chamfer depth/plate thickness. It is recommended that additional tests to the plain-pin test be conducted for the actual joint conditions of interest in the applications, as no standardized configuration can represent all these variations. ASTM D 5961 can be used as guidance on bolted joint tests.