

BS ISO 12815:2013



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Fibre-reinforced plastic composites — Determination of plain-pin bearing strength

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National foreword

This British Standard is the UK implementation of ISO 12815:2013.

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 secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Fibre-reinforced plastic composites — Determination of plain-pin bearing strength

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



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 12815 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 13, *Composites and reinforcement fibres*.

Introduction

In preparing this harmonized version, reference was made to 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 International Standard.

The method described in this International Standard 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) (see below). In the torqued bolt test, the load can increase after the bearing failure (up to x 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, *Standard test method for bearing response of polymer matrix composite laminates*, can be used as guidance on bolted joint tests.

