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BSI Standards Publication

Composites and reinforcement fibres — Carbon fibre reinforced plastics (CFRPs) and metal assemblies — Combined stress test

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National foreword

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Foreword

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Introduction

This document provides a test method for producing a well-controlled combined stress state in plane-stress conditions. This methodology can provide an accurate means for evaluating the strength of bonded metal-composite assemblies that depends only on the interaction between dissimilar adherend, the adhesive, and the interfaces subjected to various combined loadings. The results can be used to create the failure envelope for metal-composite assemblies for use in the design optimization of metal-composite assemblies. The original fixture was designed to study the shear properties of polymers[1] and later modified to perform combined load tests for various materials, including bonded assemblies of dissimilar materials.[2],[3]

This document is intended to provide experimental apparatus, test procedures, and manipulation of the result for determining the strength of adhesive-bonded metal-CFRP-metal assemblies under combined loading conditions.

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