

Aerospace series - Carbon fibre reinforced plastics -
Test method - Determination of interlaminar fracture
toughness energy - Mode I - GIC

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 6033:2015 sisaldab Euroopa standardi EN 6033:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 6033:2015 consists of the English text of the European standard EN 6033:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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English Version

Aerospace series - Carbon fibre reinforced plastics - Test method - Determination of interlaminar fracture toughness energy - Mode I - GIC

Série aérospatiale - Matières plastiques renforcées de fibres de carbone - Méthode d'essai - Détermination de l'énergie de ténacité en rupture interlaminaire - Mode I - GIC

Luft- und Raumfahrt - Kohlenstoffaserverstärkte Kunststoffe - Prüfverfahren - Bestimmung der interlaminaren Energiefreisetzungsrates - Mode I - GIC

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European foreword

This document (EN 6033:2015) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2016, and conflicting national standards shall be withdrawn at the latest by May 2016.

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1 Scope

This standard specifies the procedure to determine the mode I interlaminar fracture toughness energy G_{IC} of carbon fibre composites manufactured from unidirectional tape or woven fabric.

This standard does not give any directions necessary to meet health and safety requirements. It is the responsibility of the user of this standard to consult and establish appropriate health and safety precautions.

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.

EN 2565, *Aerospace series — Preparation of carbon fibre reinforced resin panels for test purposes* ¹⁾

EN 2743, *Aerospace series — Fibre reinforced plastics — Standard procedures for conditioning prior to testing unaged materials*

EN 6034, *Aerospace series — Carbon fibre reinforced plastics — Test method — Determination of interlaminar fracture toughness energy — Mode II — G_{IIC}* ¹⁾

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

interlaminar fracture toughness energy

the interlaminar fracture toughness energy is the energy per unit plate width which is necessary to produce an unit crack growth at an interlaminar crack between two plies of a laminate

3.2

Mode I

the mode indicates the method by which the load is applied to produce the crack. A mode I crack extends as a result of peel forces perpendicular to the crack plane

3.3

G_{IC}

G_{IC} is the designation of the interlaminar fracture toughness energy determined by a mode I test procedure

4 Principle of the method

The precracked specimen is loaded continuously by peel-forces until a total propagated crack length of approximately 100 mm has been achieved. During the crack propagation the loads and cross head displacement of the test machine will be recorded continuously. The interlaminar fracture toughness energy is calculated from the propagated crack length and the applied energy determined from the load – cross head displacement diagram.

1) Published as ASD-STAN Prestandard at the date of publication of this standard. <http://www.asd-stan.org/>