ICS 49.025.40 SLOVENSKÁ TECHNICKÁ NORMA Marec 2018

STN	**Letectvo a kozmonautika Reaktoplastové živice s uhlíkovými vláknami Jednosmerné lamináty Tlaková skúška v smere rovnobežnom so smerom vlákien**	**STN EN 2850 31 7722**

Aerospace series - Carbon fibre thermosetting resin - Unidirectional laminates - Compression test parallel to fibre direction

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

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English Version

Aerospace series - Carbon fibre thermosetting resin - Unidirectional laminates - Compression test parallel to fibre direction

Série aérospatiale - Fibres de carbone/résine thermodurcissable - Stratifiés unidirectionnels - Essai de compression parallèlement au sens des fibres

Luft- und Raumfahrt - Unidirektionale Laminate aus Kohlenstoffasern und Reaktionsharz - Druckversuch parallel zur Faserrichtung

This European Standard was approved by CEN on 26 June 2017.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 2850:2017) 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of an identical text or by endorsement, at the latest by April 2018, and conflicting national standards shall be withdrawn at the latest by April 2018.

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

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard defines a method for the determination of stress at failure and Young's modulus in compression of carbon thermosetting resin unidirectional laminates.

The method only covers test pieces the axis of which is parallel to the fibre direction.

This method covers fibres (or fabrics) other than carbon, when the relevant technical specification explicitly mentions it.

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 2372 [1], *Nuts, hexagon, thin, steel, cadmium plated — Classification: 1 100 MPa/235 °C — Aerospace series* [2]

EN 2489, *Aerospace series — Fibre reinforced plastics — Determination of the action of test fluids*

EN 2565, *Aerospace series — Preparation of carbon fibre reinforced resin panels for test purposes* [3]

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

EN 2744, *Aerospace series — Non-metallic materials — Preferred test temperatures*

EN 2823, *Aerospace series — Fibre reinforced plastics — Determination of the effect of exposure to humid atmosphere on physical and mechanical characteristics* [3]

EN 2859, Aerospace series — *Bolts, normal hexagonal head, close tolerance normal shank, short thread, in alloy steel, cadmium plated, metric series — Classification: 1 100 MPa (at ambient temperature) / 235 °C*

EN 3228, *Aerospace series — Nuts, hexagonal, plain, reduced height, normal across flats, in steel, cadmium plated — Classification: 900 MPa (at ambient temperature) / 235 °C*

EN 3783, *Aerospace series — Fibre composite materials — Normalisation of fibre dominated mechanical properties*

1) Inactive for new design, see prEN 3228.

2) Published as ASD-STAN Standard at the date of publication of this standard by AeroSpace and Defence industries Association of Europe - Standardization (ASD-STAN) (www.asd-stan.org)

3) Published as ASD-STAN Prestandard at the date of publication of this standard by AeroSpace and Defence industries Association of Europe - Standardization (ASD-STAN) (www.asd-stan.org)

3 Principle of the method

The method consists in recording and measuring the longitudinal strain of the material as a function of the applied load during a compression test carried out at a constant rate until failure.

The load applied to the material may be introduced in two different ways:

— either mainly in shear through co-cured or bonded tabs (Method A);

— or exclusively in compression by direct end loading of the test piece (Method B).

It is important to note that the test results obtained using different test pieces are not comparable.