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Supersedes EN 14165:2004

English version

Space engineering - Fracture control

Ingénierie spatiale - Maîtrise de la rupture

Raumfahrttechnik - Überwachung des Rissfortschritts

This European Standard was approved by CEN on 10 February 2014.

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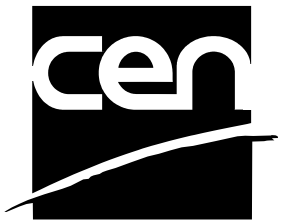
This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN and CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN and CENELEC members are the national standards bodies and national electrotechnical committees of 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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Foreword

This document (EN 16603-32-01:2014) has been prepared by Technical Committee CEN/CLC/TC 5 “Space”, the secretariat of which is held by DIN.

This standard (EN 16603-32-01:2014) originates from ECSS-E-ST-32-01C Rev. 1.

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of an identical text or by endorsement, at the latest by February 2015, and conflicting national standards shall be withdrawn at the latest by February 2015.

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

This document supersedes EN 14165:2004.

This document has been developed to cover specifically space systems and has therefore precedence over any EN covering the same scope but with a wider domain of applicability (e.g. : aerospace).

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1
Scope

This ECSS Engineering Standard specifies the fracture control requirements to be imposed on space segments of space systems and their related GSE.

The fracture control programme is applicable for space systems and related GSE when required by ECSS-Q-ST-40 or by the NASA document NST 1700.7, incl. ISS addendum.

The requirements contained in this Standard, when implemented, also satisfy the fracture control requirements applicable to the NASA STS and ISS as specified in the NASA document NSTS 1700.7 (incl. the ISS Addendum).

The NASA nomenclature differs in some cases from that used by ECSS. When STS/ISS-specific requirements and nomenclature are included, they are identified as such.

This standard may be tailored for the specific characteristic and constrains of a space project in conformance with ECSS-S-ST-00.

2
Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this ECSS Standard. For dated references, subsequent amendments to, or revision of any of these publications do not apply, However, parties to agreements based on this ECSS Standard are encouraged to investigate the possibility of applying the more recent editions of the normative documents indicated below. For undated references, the latest edition of the publication referred to applies.

EN reference	Reference in text	Title
EN 16601-00-01	ECSS-S-ST-00-01	ECSS system – Glossary of terms
EN 16603-32	ECSS-E-ST-32	Space engineering – Structural
EN 16603-32-02	ECSS-E-ST-32-02	Space engineering – Structural design and verification of pressurized hardware
EN 16602-20	ECSS-Q-ST-20	Space product assurance – Quality assurance
EN 16602-40	ECSS-Q-ST-40	Space product assurance – Safety
EN 16602-70	ECSS-Q-ST-70	Space product assurance – Materials, mechanical parts and processes
EN 16602-70-36	ECSS-Q-ST-70-36	Space product assurance – Material selection for controlling stress-corrosion cracking
EN 16602-70-45	ECSS-Q-ST-70-45	Space product assurance – Mechanical testing of metallic materials
	ASTM E 164	Standard Practice for Ultrasonic Contact Examination of Weldments
	ASTM E 426	Standard Practice for Electromagnetic (Eddy-Current) Examination of Seamless and Welded Tubular Products, Austenitic Stainless Steel and Similar Alloys
	ASTM E 1417	Standard Practice for Liquid Penetrant Examination
	ASTM E 1444	Standard Practice for Magnetic Particle Examination
	ASTM E 1742	Standard Practice for Radiographic Examination
	DOT/FAA/AR-MMPDS	Metallic Materials Properties Development and Standardization (MMPDS) (former MIL-HDBK-5)
	EN 4179	Aerospace – Qualification and Authorization of Personnel for Non-destructive Testing

EN reference	Reference in text	Title
	EN ISO 6520-1	Welding and allied processes – Classification of geometric imperfections in metallic materials – Part 1: Fusion welding
	ISO 17659	Welding – Multilingual terms for welded joints with illustrations
	MIL-HDBK-6870	Inspection program requirements, nondestructive, for aircraft and missile materials and parts
	NAS-410	Nondestructive testing personnel qualification and certification
	NSTS 1700.7	Safety Policy and Requirements For Payloads Using the Space Transportation System (STS)
	NSTS 1700.7 ISS Addendum	Safety Policy and Requirements For Payloads Using the International Space Station
	SAE AMS-STD-2154	Process for inspection, ultrasonic, wrought metals
	SAE AMS 2644	Inspection Material, Penetrant
	NSTS/ISS 13830	Payload Safety Review and Data Submittal Requirements For Payloads Using the Space Shuttle & International Space Station