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Space product assurance - Requirements for manufacturing and procurement of threaded fasteners

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

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English version

Space product assurance - Requirements for manufacturing and procurement of threaded fasteners

Assurance produit des projets spatiaux - Exigences pour la fabrication et l'approvisionnement de fixations filetées

Raumfahrtproduktsicherung - Anforderungen für die Herstellung und Beschaffung von eingezogenen Klemmen/Befestigern

This European Standard was approved by CEN on 18 October 2014.

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Table of contents

Figures

Tables

Foreword

This document (EN 16602-70-46:2014) has been prepared by Technical Committee CEN/CLC/TC 5 “Space”, the secretariat of which is held by DIN.

This standard (EN 16602-70-46:2014) originates from ECSS-Q-ST-70-46C 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of an identical text or by endorsement, at the latest by April 2015, and conflicting national standards shall be withdrawn at the latest by April 2015.

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This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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 Standard defines the requirements for manufacturing, provision, inspection and quality control of high-quality threaded fastening devices (bolts, nuts, studs and screws) hereafter referred to as threaded fasteners or fasteners, used in space hardware.

This Standard does not include a complete review of the factors relevant to the fabrication of high quality threaded fasteners. It provides the definition of the technical requirements and quality control procedures to be applied in the fabrication and supply of threaded fasteners for spacecraft applications.

Fasteners for spacecraft applications are those aerospace standard fasteners (i.e. in accordance with LN, DIN or other national or international aerospace standards), or those fasteners meeting or exceeding the requirements in ISO 4759-1 for “Product grade A”, which also fulfil the requirements for space applications as specified in the present document.

2
Normative references

The following dated normative documents are called by the requirements of this ECSS Standard and therefore constitute requirements to it. Subsequent amendments to, or revisions of any of these publications do not apply.

NOTE However, parties to agreements based on this ECSS Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below.

EN reference	Reference in text	Title
EN 16601-00-01	ECSS-S-ST-00-01C	ECSS system – Glossary of terms
EN 16603-30-01	ECSS-E-ST-30-01C	Space engineering — Fracture control
EN 16602-70	ECSS-Q-ST-70C	Space product assurance — Materials, parts and processes
EN 16602-70-02	ECSS-Q-ST-70-02C	Space product assurance — Thermal vacuum outgassing test for the screening of space materials
EN 16602-70-29	ECSS-Q-ST-70-29C	Space product assurance — The determination of offgassing products from materials and assembled articles to be used in a manned space vehicle crew compartment
EN 16602-70-36	ECSS-Q-ST-70-36C	Space product assurance — Material selection for controlling stress-corrosion cracking
EN 16602-70-37	ECSS-Q-ST-70-37C	Space product assurance — Determination of the susceptibility of metals to stress— corrosion cracking
EN 16602-70-71	ECSS-Q-ST-70-71C	Space product assurance — Data for selection of space materials
	ISO 204	Metallic materials — Uninterrupted uniaxial creep testing in tension — Method of test
	ISO 225	Fasteners — Bolts, screws, studs and nuts — Symbols and designations of dimensions
	ISO 1502	ISO general — purpose metric screw threads — Gauges and gauging

EN reference	Reference in text	Title
	ISO 2859-1	Sampling procedures for inspection by attributes, Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection
	ISO 2859-2	Sampling procedures for inspection by attributes, Part 2: Sampling plans indexed by limiting quality (LQ), for isolated lots inspection
	ISO 3353-1:2002	Aerospace — Lead and runout threads — Part 1: Rolled external threads
	ISO 3800	Threaded fasteners – Axial load fatigue testing – Test methods and evaluation of results
	ISO 4759-1	Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts — Product grades A, B and C
	ISO 6157-2	Fasteners — Surface discontinuities – Part 2: Nuts
	ISO 6157-3	Fasteners – Surface discontinuities – Part 3: Bolts, screws and studs for special requirements
	ISO 6506-1	Metallic materials — Brinell hardness test — Part 1: Test method
	ISO 6506-2	Metallic materials — Brinell hardness test — Part 2: Verification and calibration of testing machines
	ISO 6506-3	Metallic materials — Brinell hardness test — Part 3: Calibration of reference blocks
	ISO 6507-1	Metallic materials — Vickers hardness test – Part 1: Test method
	ISO 6507-2	Metallic materials — Vickers hardness test — Part 2: Verification and calibration of testing machines
	ISO 6507-3	Metallic materials — Vickers hardness test — Part 3: Calibration of reference blocks
	ISO 6508-1	Metallic materials — Rockwell hardness test — Part 1: Test method
	ISO 6508-2	Metallic materials — Rockwell hardness test — Part 2: Verification and calibration of testing machines
	ISO 6508-3	Metallic materials — Rockwell hardness test — Part 3: Calibration of reference blocks
	ISO 9140	Aerospace – Nuts, plain or slotted (castellated) – Test methods
	DIN ISO 9152	Aerospace – Bolts, with MJ Threads, in Titanium alloys, strength class 1100 MPa – Procurement specification
	ASTM B 117-07a	Standard practice for operating salt spray (fog) apparatus
	ASTM E 1417-05e1	Standard practice for liquid penetrant testing
	ASTM E 1444-05	Standard practice for magnetic particle testing