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Space product assurance - Processing and quality assurance requirements for hard brazing of metallic materials for flight hardware

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 - Processing and quality assurance requirements for hard brazing of metallic materials for flight hardware

Assurance produit des projets spatiaux - Exigences de traitement et d'assurance qualité pour le brasage fort de matériaux métalliques pour matériel de vol

Raumfahrtproduktsicherung - Prozess- und Qualitätssicherungsanforderungen für das Hartlöten von Metallen für Flughardware

This European Standard was approved by CEN on 28 November 2022.

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EN 16602-70-40:2023 (E)

Table of contents

European Foreword	5
1 Scope	6
2 Normative references	7
3 Terms, definitions and abbreviated terms	8
3.1 Terms from other standards.....	8
3.2 Terms specific to the present standard	8
3.3 Abbreviated terms.....	9
3.4 Conventions.....	10
3.5 Nomenclature	10
3.6 Schematic of brazed assembly	11
4 Principles	12
4.1 General.....	12
4.2 Classification of safety classes and quality levels	15
4.2.1 Overview.....	15
4.2.2 Safety classes.....	15
4.2.3 Quality levels.....	15
4.3 Tailoring of the brazing acceptance criteria.....	15
5 Brazing Design	16
5.1 Design for brazed connections.....	16
5.2 Design for inspection	16
6 Brazing and inspection personnel	17
6.1 Overview	17
6.2 Brazer and brazing operator training.....	17
6.3 Brazing inspector training	17
7 Equipment and facilities	18
7.1 Equipment	18
7.2 Materials and consumables	18
7.2.1 Filler material	18

7.2.2	Flux.....	18
7.2.3	Tooling and fixtures.....	18
8	Brazing procedure specification (BPS)	19
8.1	General.....	19
8.2	Drawing	19
8.3	Process description	19
8.4	Cleanliness aspects of Brazing	19
8.4.1	Overview.....	19
8.4.2	Requirements.....	19
9	Brazing inspection	21
9.1	Non-destructive testing	21
9.2	Destructive testing	21
10	Brazing acceptance criteria	22
10.1	General.....	22
10.2	Classification of Imperfections	22
10.3	Brazing Imperfections Acceptance Criteria	22
10.4	Selection of quality levels.....	23
11	Brazing process verification.....	28
11.1	General.....	28
11.2	Brazing Verification Test Plan	28
11.3	Completion of verification.....	30
11.4	Delta verification	30
11.5	Re-brazing, in-process correction	30
11.6	Repair-brazing	31
11.7	Documentation	31
12	Flight hardware production	32
12.1	Documentation	32
12.2	Requirements for flight hardware brazing	32
12.2.1	General.....	32
12.2.2	Extent of testing to support flight hardware production	32
13	Quality assurance.....	34
13.1	Maintenance of BPS	34
13.2	Quality control.....	34
13.2.1	Documentation of brazing parameters.....	34

EN 16602-70-40:2023 (E)

13.2.2	Anomalies and nonconformances occurring during the brazing process	34
13.2.3	Inspection and test methods	35
Annex A (normative) Brazing Procedure Specification (BPS) - DRD		36
A.1	DRD identification	36
A.1.1	Requirement identification and source document	36
A.1.2	Purpose and objective	36
A.2	Expected response	36
A.2.1	Scope and content	36
A.2.2	Special remarks	37
Annex B (normative) Brazing Verification Test Plan (BVTP) - DRD		38
B.1	DRD identification	38
B.1.1	Purpose and scope	38
B.2	Expected response	38
B.2.1	Scope and content	38
B.2.2	Special remarks	38
Bibliography		39
Figures		
Figure 3-1: Schematic of a brazed and soldered joint (taken from EN ISO 18279:2004)		11
Figure 4-1: Steps for brazing process verification and flight hardware production		14
Tables		
Table 10-1: Classification of imperfections in Brazing joints (the classification of imperfections is derived from EN ISO 18279:2004)		24
Table 11-1: Test Matrix for standard test		30
Table 12-1: Tests to be performed on parts performed during production of flight hardware		33

European Foreword

This document (EN 16602-70-40:2023) has been prepared by Technical Committee CEN-CENELEC/TC 5 "Space", the secretariat of which is held by DIN.

This standard (EN 16602-70-40:2023) originates from ECSS-Q-ST-70-40C.

This document has been prepared under a standardization request 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).

1

Scope

This Standard specifies the processing and quality assurance requirements for brazing processes for space flight applications. Brazing is understood as the joining and sealing of materials by means of a solidification of a liquid filler metal.

The term brazing in this standard is used as equivalent to soldering, in cases that the filler materials have liquidus temperatures below 450 °C.

Brazing and soldering are allied processes to welding and this standard is supplementing the standard for welding ECSS-Q-ST-70-39.

This standard does not cover requirements for:

- Joining processes by adhesive bonding (ECSS-Q-ST-70-16),
- Soldering for electronic assembly purposes (ECSS-Q-ST-70-61),
- Soldering used in hybrid manufacturing (ESCC 2566000).

The standard covers but is not limited to the following brazing processes:

- Torch brazing,
- Furnace brazing,
- Dip Brazing and Salt-bath brazing,
- Induction Brazing.

This Standard does not detail the brazing definition phase and brazing pre-verification phase, including the derivation of design allowables.

This standard may be tailored for the specific characteristic and constraints 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 16603-10-02	ECSS-E-ST-10-02	Space engineering – Verification
EN 16603-32-01	ECSS-E-ST-32-01	Space engineering – Fracture control
EN 16601-40	ECSS-M-ST-40	Space management – Configuration and information management
EN 16602-10-09	ECSS-Q-ST-10-09	Space product assurance – Nonconformance control system
EN 16602-70	ECSS-Q-ST-70	Space product assurance – Materials, mechanical parts and processes

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