SLOVENSKI STANDARD
SIST EN 2003-010:2009

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Aeronavtika - Titan in titanove zlitine - Preskusne metode - 010. del: Vzorčenje za določevanje vodika

Aerospace series - Titanium and titanium alloys - Test methods - Part 010: Sampling for determination of hydrogen content

Luft- und Raumfahrt - Titan und Titanlegierungen - Prüfverfahren - Teil 010: Probenentnahme für die Bestimmung des Wasserstoffgehaltes

Série aérospatiale - Titane et alliages de titane - Méthodes d'essais - Partie 010 : Échantillonnage pour la détermination de la teneur en hydrogène

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Aerospace series - Titanium and titanium alloys - Test methods - Part 010: Sampling for determination of hydrogen content

Série aérospatiale - Titane et alliages de titane - Méthodes d'essais - Partie 010 : Échantillonnage pour la détermination de la teneur en hydrogène

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 2003-010:2007) 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of an identical text or by endorsement, at the latest by September 2007, and conflicting national standards shall be withdrawn at the latest by September 2007.

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Introduction

This standard is part of the series of EN metallic material standards for aerospace applications. The general organization of this series is described in EN 4258.

1 Scope

This standard specifies the location of the test pieces and the analysis samples used for the determination of hydrogen content in titanium and titanium alloys products.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 4258, *Aerospace series — Metallic materials — General organization of standardization — Links between types of EN standards and their use*.

3 General requirements

3.1 The hydrogen content of a product shall be determined in the delivery condition unless otherwise agreed between manufacturer and purchaser.

3.2 The test pieces shall be cut so as to avoid contamination. Clean cutting tools shall be used. Abrasive wheel cutting and cutting fluids are permissible provided they are applied under controlled conditions.

3.3 Cutting of the hydrogen analysis sample by laboratory personnel shall be done as far as possible using clean dry cutting tools. At this stage, abrasive cutting and cutting fluids are to be avoided unless it can be demonstrated that the technique used does not significantly affect the analysis results.

4 Location of test pieces

4.1 General

Since hydrogen is more highly concentrated in zones close to the surface, the location of the test piece shall ensure that an analysis sample representative of the product is taken at a defined location related to the product surface; or if that surface remains in the finished part it shall include the product surface.

4.2 Sheet and strip (thickness ≤ 6 mm)

Test pieces shall be taken so as to include the total sheet or strip thickness, in accordance with Figure 1.

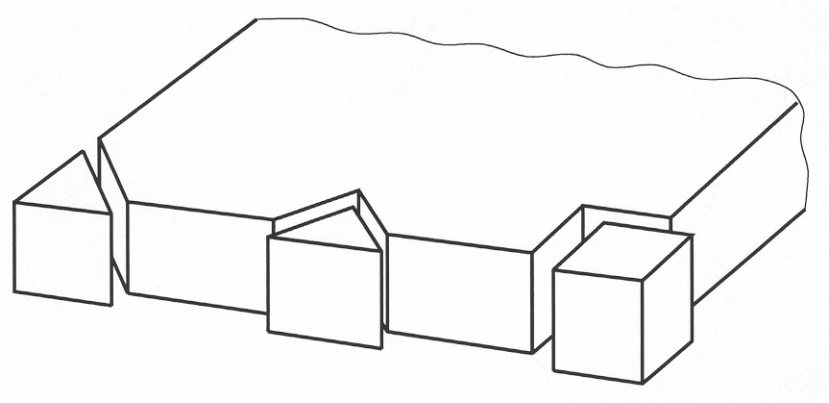

Figure 1 — Sheet and strip (thickness ≤ 6 mm)

4.3 Plate (thickness > 6 mm)

Depending on the thickness of the plate the test pieces shall either:

— contain at least one product surface as shown in Figure 2;

or

— include the total thickness of the plate.

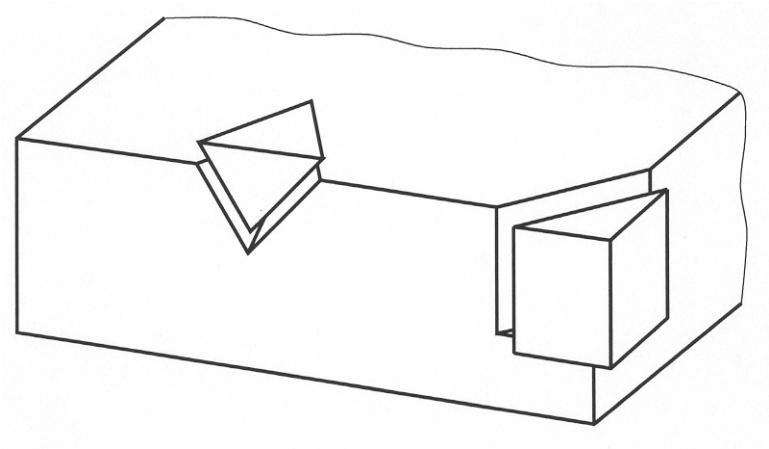

Figure 2 — Plate (thickness > 6 mm), forgings and castings

4.4 Bar for machining, bar for fasteners, sections and wire

4.4.1 For products with a diameter or thickness ≤ 5 mm, the test pieces shall include the total thickness of the product.

4.4.2 For products with a diameter or thickness > 5 mm, the test piece shall either:

— contain at least one product surface as shown in Figure 3;

or

— include the total thickness of the product.

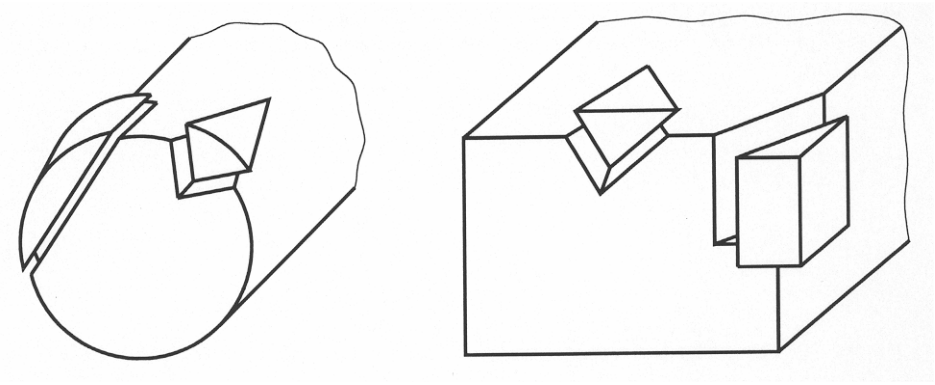

Figure 3 — Forging stock (diameter or thickness < 100 mm), bar for machining, bar for fasteners, sections and wire

4.5 Forging stock

For forging stock with a diameter or thickness < 100 mm, the test pieces location shall be in accordance with Figure 3. For larger diameters or thicknesses, the test pieces location shall be agreed between manufacturer and purchaser.

4.6 Forgings and castings

Unless otherwise required in the inspection schedule, the location of test pieces shall be in accordance with Figure 2.

4.7 Tubes

For tubes with a wall thickness ≤ 5 mm, the test pieces shall include the whole wall thickness. For larger wall thicknesses, the location of the test pieces shall be agreed between manufacturer and purchaser.

5 Analysis samples

5.1 Mass

The analysis samples shall be taken from the test pieces.

They shall have normally a mass of less than 1 g.

5.2 Cleaning

The analysis samples shall be cleaned, degreased and dried.

Immediately before analysis is carried out, the laboratory personnel shall ensure that the analysis sample has a clean metallic, surface.