

**Aerospace series - Test method for metallic materials -  
Ultrasonic inspection of bars, plates, forging stock and  
forgings - Part 1: General requirements**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 4050-1:2012 sisaldab Euroopa standardi EN 4050-1:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 4050-1:2012 consists of the English text of the European standard EN 4050-1:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 26.09.2012.	Date of Availability of the European standard is 26.09.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 49.025.05, 49.025.15

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ICS 49.025.05; 49.025.15

English Version

Aerospace series - Test method for metallic materials -  
Ultrasonic inspection of bars, plates, forging stock and forgings -  
Part 1: General requirements

Série aérospatiale - Méthode d'essai applicable aux  
matériaux métalliques - L'inspection par ultrasons des  
barres, des assiettes, des stocks de forgeage et de pièces  
forgées - Partie 1: Exigences générales

Luft- und Raumfahrt - Prüfverfahren für metallische  
Werkstoffe - Ultraschallprüfung von Stangen, Platten,  
Schmiedevormaterial und Schmiedestücken - Teil 1:  
Allgemeine Anforderungen

This European Standard was approved by CEN on 15 July 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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 member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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## Foreword

This document (EN 4050-1:2012) 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 March 2013, and conflicting national standards shall be withdrawn at the latest by March 2013.

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.

According to the CEN/CENELEC Internal Regulations, the national standards organisations 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 European Standard defines the ultrasonic inspection procedure for rolled, drawn, extruded and forged billets, bars and plates, rolled rings and forgings with a uniform square, rectangular or round cross section. It does not cover critical rotating parts in steel, titanium, titanium alloys, aluminium alloys and heat resisting alloys that are to be inspected in accordance with the technical supply conditions of the relevant EN standards or internal specifications.

## 2 Generality

For products with geometries other than those described above, the test conditions and acceptance criteria shall be agreed between the manufacturer and purchaser.

## 3 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 2000, *Aerospace series — Quality assurance — EN aerospace products — Approval of the quality system of manufacturers*

EN 2078, *Aerospace series — Metallic materials — Manufacturing schedule, inspection schedule, inspection and test report — Definition, general principles, preparation and approval*

EN 4050-2, *Aerospace series — Test method for metallic materials — Ultrasonic inspection of bars, plates, forging stock and forgings — Part 2: Performance of test*

EN 4050-3, *Aerospace series — Test method for metallic materials — Ultrasonic inspection of bars, plates, forging stock and forgings — Part 3: Reference blocks*

EN 4050-4, *Aerospace series — Test method for metallic materials — Ultrasonic inspection of bars, plates, forging stock and forgings — Part 4: Acceptance criteria*

EN 4179, *Aerospace series — Qualification and approval of personnel for non-destructive testing*

## 4 Method

The inspection shall be made in accordance with the contact or immersion method depending on the requirements of the material standard.

Echo indications are classified by comparison with the indications of flat bottom holes (FBH) of specific diameter, drilled in test blocks that shall be acoustically similar to the material to be tested or have suitable correction curves to ensure equivalency, or in accordance with the DGS (Distance Gain Size) method.

The method to be applied in each case shall be documented in the form of an ultrasonic technique sheet which if agreed with the purchaser shall be referenced on the order or in an inspection schedule in accordance with EN 2078.