

**Aerospace series - Test method - Wrought heat  
resisting alloys Semi-finished products and parts -  
Conditions for macrographic and micrographic  
examination - Atlas of structures and defects**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 2950:2008 sisaldab Euroopa standardi EN 2950:2008 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 25.09.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 13.08.2008.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 2950:2008 consists of the English text of the European standard EN 2950:2008.

This standard is ratified with the order of Estonian Centre for Standardisation dated 25.09.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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Võtmesõnad:

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Aru 10 Tallinn 10317 Eesti; [www.evs.ee](http://www.evs.ee); Telefon: 605 5050; E-post: [info@evs.ee](mailto:info@evs.ee)

English Version

**Aerospace series - Test method - Wrought heat resisting alloys  
Semi-finished products and parts - Conditions for macrographic  
and micrographic examination - Atlas of structures and defects**

Série aérospatiale - Méthode d'essais - Demi-produits et  
pièces corroyés en alliage résistant à chaud - Conditions  
d'examen macrographique et micrographique - Atlas de  
structures et de défauts

Luft- und Raumfahrt - Prüfverfahren - Umgeformte  
Erzeugnisse aus hochwarmfesten Legierungen -  
Prüfbedingungen für makrographische und  
mikrographische Untersuchung - Gefüge- und Fehleratlas

This European Standard was approved by CEN on 7 March 2008.

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

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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 2950:2008) 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 February 2009, and conflicting national standards shall be withdrawn at the latest by February 2009.

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 organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

## 1 Scope

The present document defines the conditions for the macrographic and micrographic examination of heat resisting alloy semi-finished and parts.

It includes an atlas of commonly encountered and structural defects.

The present document shall be applied in conjunction with the material standards specifying the criteria of acceptance.

The present document is not intended to apply to cast or powder metallurgy 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 2078, *Aerospace series — Metallic materials — Manufacturing schedule, inspection schedule, inspection and test report — Definition, general principles, preparation and approval*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1

#### **tree rings**

one or more concentric or non-concentric rings evidenced by a difference in texture associated with minor composition gradients due to ingot solidification

### 3.2

#### **dendritic aspect**

coarse structure having a fir-tree like appearance initiated during the solidification of the ingot

### 3.3

#### **grain flow**

fibre like lines which are caused by orientation of the constituents of the metal during deformation

### 3.4

#### **recrystallisation**

formation of a new grain structure from that existing previously

### 3.5

#### **freckles**

a type of segregation consisting of circular or near-circular dark etching areas, generally enriched with carbides and hardening elements

### 3.6

#### **white spots**

a type of segregation consisting of bright white areas having bulk or fibrous configuration, generally depleted in carbides and hardening elements

### 3.7

#### **stringer**

predominantly straight linear formation which is  $\leq 2$  particles in width