

## Founding - Abrasion resistant cast iron

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 12513:2011 sisaldab Euroopa standardi EN 12513:2011 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 28.02.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 16.02.2011.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 12513:2011 consists of the English text of the European standard EN 12513:2011.

This standard is ratified with the order of Estonian Centre for Standardisation dated 28.02.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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The standard is available from Estonian standardisation organisation.

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cast iron, chromium content, classification, classification systems, classifications, definitions, foundry practice, grade, grades, hardness, heat treatment, materials, selection of grades, specification (approval), specifications, surveys, wear, wear resistance

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English Version

## Founding - Abrasion resistant cast irons

Fonderie - Fontes résistant à l'usure par abrasion

Gießereiwesen - Verschleißbeständige Gusseisen

This European Standard was approved by CEN on 8 January 2011.

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## Foreword

This document (EN 12513:2011) has been prepared by Technical Committee CEN/TC 190 "Foundry technology", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by August 2011, and conflicting national standards shall be withdrawn at the latest by August 2011.

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.

This document supersedes EN 12513:2000.

Within its programme of work, Technical Committee CEN/TC 190 requested CEN/TC 190/WG 8 "High alloyed cast iron" to revise EN 12513:2000.

Annexes A, B, C, D and E are informative.

Annex F provides information about significant technical changes between this European standard and the previous edition.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## Introduction

This European Standard deals with the classification of abrasion resistant white cast irons in accordance with their chemical composition and hardness. Such cast irons are widely used in the mining, earth moving, milling and manufacturing industries where high resistance to abrading minerals and other abrading solids is required.

The abrasion resistance of these cast irons depends on them having the appropriate structure and hardness for the application. These properties are obtained by careful control of the material composition and the processing route.

In this edition of EN 12513, the designation by symbol is based on Brinell hardness instead of Vickers hardness, because it corresponds better with the measurement method applied in practice.

In this European Standard a new designation system by number, as established in EN 1560, is given.

NOTE This designation system by number is based on the structure and rules of EN 10027-2 and so corresponds with the European numbering system for steel and other materials.

## 1 Scope

This European Standard defines the grades of abrasion resistant white cast irons. It specifies the grades in terms of:

- chemical composition;
- hardness.

The types of abrasion resistant white cast irons covered by this standard are:

- a) unalloyed or low alloy cast irons;
- b) nickel-chromium cast irons covering two general types:
  - 4 % Ni 2 % Cr cast irons;
  - 9 % Cr 5 % Ni cast irons;
- c) high chromium cast irons covering four ranges of chromium content:
  - $11 \% < \text{Cr} \leq 14 \%$ ;
  - $14 \% < \text{Cr} \leq 18 \%$ ;
  - $18 \% < \text{Cr} \leq 23 \%$ ;
  - $23 \% < \text{Cr} \leq 30 \%$ .

This European Standard does not define the abrasion resistant grades of ausferritic spheroidal graphite cast irons which are subject of EN 1564.

## 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 ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method (ISO 6506-1:2005)*

## 3 Terms and definitions

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

### 3.1

#### **unalloyed or low alloy abrasion-resistant cast iron**

cast iron having a structure which consists of eutectic iron carbides in a predominantly pearlitic matrix

### 3.2

#### **nickel-chromium abrasion-resistant cast iron**

cast iron having a structure consisting of either

- simple eutectic carbides  $\text{M}_3\text{C}$  type ( $\text{M} = \text{Fe}, \text{Cr}$ ) in a matrix which is predominantly martensitic, referred to as 4 % Ni 2 % Cr cast irons,