

Vitjärn – Klassificering (ISO 21988:2006, IDT)

**Abrasion-resistant cast irons – Classification
(ISO 21988:2006, IDT)**

Den internationella standarden ISO 21988:2006 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ISO 21988:2006.

The International Standard ISO 21988:2006 has the status of a Swedish Standard. This document contains the official English version of ISO 21988:2006.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 21988 was prepared by Technical Committee ISO/TC 25, *Cast irons and pig irons*, Subcommittee SC 6, *High alloy cast irons*.

This International Standard is one of a number that has been prepared by ISO/TC 25/SC 6 under the auspices of ISO/TC 25 for the family of cast irons. The Secretariats of ISO/TC 25 and ISO/TC 25/SC 6 are held by BSI; however, the funding and resources for the Secretariat have been provided by the Cast Metals Federation.

Introduction

This International 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 irons depends upon 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.

Abrasion-resistant cast irons — Classification

1 Scope

This International 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 International 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 five ranges of chromium content:
 - Cr > 11 % to ≤ 14 %;
 - Cr > 14 % to ≤ 18 %;
 - Cr > 18 % to ≤ 23 %;
 - Cr > 23 % to ≤ 30 %;
 - Cr > 30 % to ≤ 40 %.

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.

ISO/TR 15931, *Designation system for cast irons and pig irons*

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

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 M_3C type ($M = Fe, Cr$) in a matrix which is predominantly martensitic referred to as 4 % Ni 2 % Cr irons; or
- complex eutectic carbides (M_7C_3 and M_3C) in a matrix which is predominantly martensitic, referred to as 9 % Cr 5 % Ni irons

NOTE 1 Both of these materials can contain some bainite and retained austenite.

NOTE 2 All the grades referred to in this subclause are free of pearlite.

3.3

high chromium abrasion-resistant cast iron

cast iron containing between 11 % and 40 % Cr having a structure consisting of complex carbides in a matrix which, in the hardened condition, is predominantly martensitic, but which can also contain some austenite or other transformation products of austenite

4 Designation

The material shall be designated by symbols denoting the Brinell hardness and the chemical composition (Chromium content, X denoting high Chromium content), in accordance with the designations given in Tables 1 to 3.

NOTE 1 The symbols given in this International Standard comply with the guidance given in ISO/TR 15931.

NOTE 2 According to the designation system given in ISO/TR 15931, the designations of the material grades have been changed.

5 Order information

The following information shall be supplied by the purchaser:

- a) the complete designation of the material;
- b) any special requirements which have to be agreed upon between the manufacturer and the purchaser by the time of the acceptance of the order.

6 Manufacture

6.1 General

The manufacturing methods for abrasion-resistant cast irons, unless otherwise specified by the purchaser, shall be left to the discretion of the manufacturer. The manufacturer shall ensure that the requirements of this International Standard are met for the material grade specified in the order.