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**Founding — Ausferritic spheroidal  
graphite cast irons — Classification**

*Fonderie — Fonte ausferritique à graphite sphéroïdal — Classification*



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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 17804 was prepared by Technical Committee ISO/TC 25, *Cast irons and pig irons*, Subcommittee SC 2, *Spheroidal graphite cast irons*.

## Introduction

Ausferritic spheroidal graphite cast iron is a cast alloy, iron and carbon based, carbon being present mainly in the form of spheroidal graphite particles.

Compared with the spheroidal graphite cast-iron grades (see ISO 1083:2004), this material combines higher strength and toughness properties as a result of the austempering heat treatment.

This International Standard deals with the classification of ausferritic spheroidal graphite cast irons in accordance with the mechanical properties of the material.

The mechanical properties of these ausferritic spheroidal graphite cast irons depend on their structure, e.g. the form of the graphite and the structure of the matrix.

The required structure is developed by selecting the appropriate composition and subsequent processing.

The mechanical properties of the material can be evaluated on machined test pieces prepared from:

- separately cast samples with an appropriate gating system, able to provide metallurgical conditions similar to those of the castings they represent;
- samples cast onto either the casting or the running system, hereafter referred to as cast-on samples;
- samples cut from a casting (only by agreement between the manufacturer and the purchaser, the agreement specifying, in particular, the conditions of sampling and the values to be obtained).

Two grades of ausferritic spheroidal graphite cast iron are specified in Annex A, in accordance with their hardness. These cast irons are used in applications (e.g. mining, earth moving and manufacturing industries) where high abrasion resistance is required.

Five grades of ausferritic spheroidal graphite cast iron are specified by the mechanical properties. When, for these grades, hardness is a requirement for the application, Annex D provides means for determining appropriate hardness ranges.

# Founding — Ausferritic spheroidal graphite cast irons — Classification

## 1 Scope

This International Standard defines the grades and the corresponding requirements for ausferritic spheroidal graphite cast irons.

This International Standard specifies five grades of ausferritic spheroidal graphite cast iron by a classification based on mechanical properties measured on machined test pieces prepared from:

- separately cast samples or cast-on samples;
- samples cut from a casting.

This International Standard also specifies two grades by a classification as a function of hardness.

## 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 148-1, *Metallic materials — Charpy pendulum impact test — Part 1: Test method*

ISO 148-2, *Metallic materials — Charpy pendulum impact test — Part 2: Verification of test machines*

ISO 148-3, *Metallic materials — Charpy pendulum impact test — Part 3: Preparation and characterization of Charpy V reference test pieces for verification of test machines*

ISO 945, *Cast iron — Designation of microstructure of graphite*

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

ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method*

ISO 6892, *Metallic materials — Tensile testing at ambient temperature*

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