

## საქართველოს სტანდარტი

ჩამოსხმა-სფერული გრაფიტის შემცველი თუჯი

საქართველოს სტანდარტებისა და მეტროლოგიის  
ეროვნული სააგენტო  
თბილისი

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English Version

## Founding - Spheroidal graphite cast irons

Fonderie - Fontes à graphite sphéroïdal

Gießereiwesen - Gusseisen mit Kugelgraphit

This European Standard was approved by CEN on 12 November 2011.

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## Foreword

This document (EN 1563:2011) 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of an identical text or by endorsement, at the latest by June 2012, and conflicting national standards shall be withdrawn at the latest by June 2012.

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 1563:1997.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive 97/23/EC, see informative Annex ZA, which is an integral part of this document.

Within its programme of work, Technical Committee CEN/TC 190 requested CEN/TC 190/WG 7 “Spheroidal graphite, silicon molybdenum and austempered ductile iron” to revise EN 1563:1997.

Annex J provides details of 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 the United Kingdom.

## Introduction

The properties of spheroidal graphite cast irons depend on their structure.

Spheroidal graphite cast irons covered by this European Standard are divided in two groups:

- 1) ferritic to pearlitic spheroidal graphite cast irons which were in the previous standard;
- 2) solid-solution strengthened ferritic spheroidal graphite cast irons which were not in the previous standard.

The two groups present specific properties, for example:

- the ferritic grades of the first group present the highest impact energy;
- the pearlite containing grades are more suitable for wear resistance applications;
- the solid-solution strengthened ferritic grades present for an equivalent tensile strength a higher proof strength and a higher elongation than that of the ferritic to pearlitic grades;
- a significant property of these solid-solution strengthened ferritic grades is the reduced hardness variation resulting in an improved machinability.

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

- separately cast samples;
- side-by-side cast samples;
- cast-on samples;
- samples cut from a casting.

The material grade is defined by mechanical properties measured on machined test pieces prepared from cast samples.

If hardness or un-notched impact energy are a requirement of the purchaser as being important for the application, then Annex C or Annex I provide means for its determination.

It is well known that tensile properties and hardness of spheroidal graphite cast irons are interrelated. When considered by the purchaser as being important for the application, both tensile and hardness properties may be specified.

Further technical data on spheroidal graphite cast irons is given in Annexes A, E and F.

In this European Standard a new designation system by number, as established in EN 1560:2011 [1], is given.

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

Some spheroidal graphite cast iron grades can be used for pressure equipment.

The permitted material grades of spheroidal graphite cast iron for pressure applications and the conditions for their use are given in specific product or application standards.

For the design of pressure equipment, specific design rules apply.

Annex ZA gives information relating to the conformance of permitted spheroidal graphite cast iron grades to the Pressure Equipment Directive 97/23/EC.