

საქართველოს სტანდარტი

სსკ: 77.080.10

ჩამოსხმა - სფერული გრაფიტის შემცველი თუჯი

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

სსტ ენ 1563:2018/2020

საინფორმაციო მონაცემები

1 მიღებულია და დაშვებულია სამოქმედოდ: სსიპ-საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს გენერალური დირექტორის 22/10/2020 წლის № 103 განკარგულებით

2 მიღებულია „თავფურცლის“ თარგმნის მეთოდით: სტანდარტიზაციის ევროპული კომიტეტის სტანდარტი ენ 1563:2018 „ ჩამოსხმა - სფერული გრაფიტის შემცველი თუჯი“

3 პირველად

4 რეგისტრირებულია: სსიპ-საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 22/10/2020 წლის №268-1.3-018850

წინამდებარე სტანდარტის ნებისმიერი ფორმით გავრცელება სააგენტოს ნებართვის გარეშე აკრძალულია

English Version

Founding - Spheroidal graphite cast irons

Fonderie - Fontes à graphite sphéroïdal

Gießereiwesen - Gusseisen mit Kugelgraphit

This European Standard was approved by CEN on 9 April 2018.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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-CENELEC Management Centre has the same status as the official versions.

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



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword.....	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	6
4 Designation.....	8
5 Order information	8
6 Manufacture	8
7 Requirements	9
7.1 General.....	9
7.2 Ferritic to pearlitic spheroidal graphite cast irons	9
7.3 Solid solution strengthened ferritic spheroidal graphite cast irons	12
8 Sampling.....	13
8.1 General.....	13
8.2 Cast samples.....	14
8.3 Samples cut from a casting	15
9 Test methods	20
9.1 Tensile test	20
9.2 Impact test	21
9.3 Hardness test.....	22
9.4 Graphite morphology examination	22
10 Retests.....	22
10.1 Need for retests.....	22
10.2 Test validity.....	23
10.3 Non-conforming test results	23
10.4 Heat treatment of samples and castings.....	23
11 Inspection documentation.....	23
Annex A (informative) Additional information on solid solution strengthened ferritic spheroidal graphite cast irons	24
Annex B (informative) Guidance values for mechanical properties determined on test pieces machined from samples cut from the castings.....	27
Annex C (informative) Guidance values for hardness.....	29
Annex D (informative) Nodularity	31
Annex E (informative) Additional information on mechanical and physical properties.....	32
Annex F (normative) Sectioning procedure for cast samples	36
Annex G (informative) Comparison of spheroidal graphite cast iron material designations according to EN 1560 [1] and ISO/TR 15931 [15].....	37
Annex H (informative) Fracture mechanical approach to spheroidal graphite cast irons.....	38

Annex I (informative) Significant technical changes between this European Standard and the 2011 edition	43
Annex J (informative) Significant technical changes between the 1997 edition and the 2011 edition	44
Annex ZA (informative) Relationship between this European Standard and the essential safety requirements of Annex I of the Directive 2014/68/EU aimed to be covered	46
Bibliography	47

European foreword

This document (EN 1563:2018) 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 February 2019 and conflicting national standards shall be withdrawn at the latest by February 2019.

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

This document supersedes EN 1563:2011.

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 2014/68/EU, 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 1563:2011.

Annex I provides details of significant technical changes between this European Standard and the 2011 edition (previous edition).

Annex J provides details of significant technical changes between the 1997 edition and the 2011 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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;
- 2) solid-solution strengthened ferritic spheroidal graphite cast irons.

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 after fracture 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 is a requirement of the purchaser as being important for the application, then Annex C provides 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 H.

In this European Standard, a designation system by number, as established in EN 1560 [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 steels and other materials.

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

The permitted material grades of spheroidal graphite cast irons 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 the spheroidal graphite cast iron grades to the Pressure Equipment Directive 2014/68/EU.