



**SLOVENSKI STANDARD**  
**kSIST FprEN 16482:2014**  
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**[Not translated]**

Founding - Continuous cast iron bars

Gießereiwesen - Gusseisen-Strangguss

Fonderie - Barres de fonte par coulée continue

**Ta slovenski standard je istoveten z: FprEN 16482**

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**ICS:**

77.140.80      Železni in jekleni ulitki      Iron and steel castings

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English Version

## Founding - Continuous cast iron bars

Fonderie - Barres de fonte par coulée continue

Gießereiwesen - Gusseisen-Strangguss

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## Foreword

This document (FprEN 16482:2013) has been prepared by Technical Committee CEN/TC 190 “Foundry technology”, the secretariat of which is held by DIN.

This document is currently submitted to the Formal Vote.

Within its programme of work, Technical Committee CEN/TC 190 requested CEN/TC 190/WG 7 “Spheroidal graphite, silicon molybdenum and ausferritic cast iron” to prepare the following standard:

EN 16482, *Founding — Continuous cast iron bars*

## **Introduction**

The European Standards EN 1561 [1] and EN 1563 [2] classify grey cast irons and spheroidal graphite cast irons respectively, which are cast in sand moulds or moulds of comparable thermal behaviour.

This European Standard classifies grey cast iron and spheroidal graphite cast iron bar, which are produced by the continuous casting process.

Due to the high cooling rate during solidification and further cooling, both graphite and matrix structure differs from those obtained by sand casting and consequently the mechanical properties in relation to section thickness [3] [4].

The mechanical properties of continuous cast iron bars are evaluated on machined test pieces prepared from samples cut from the bar.

However, for many applications tensile strength or hardness are not the only interesting or determining properties. Other mechanical or physical properties can be decisive for the use of grey cast iron or spheroidal graphite cast iron, for example: thermal capacity, thermal diffusivity, damping capacity, thermo-cycle fatigue and toughness.

Additional technical data for grey cast irons is given in EN 1561 and for spheroidal graphite cast irons in EN 1563 and Annex D of this European Standard.

## 1 Scope

This European Standard defines the grades of grey cast iron and spheroidal graphite cast iron bars, which have been manufactured by the continuous casting process.

This European Standard specifies the characterizing properties of grey cast iron bars by either

- a) the tensile strength measured on machined test pieces prepared from samples cut from the bars or
- b) the hardness measured on the bars.

If agreed by the manufacturer and the purchaser, the combination of both tensile strength from option a) and hardness from option b) may be specified.

This European Standard specifies the characterizing properties of spheroidal graphite cast iron bars by the tensile strength measured on machined test pieces prepared from samples cut from the bars.

This European Standard specifies four grades of grey cast iron and 14 grades of spheroidal graphite cast iron by a classification based on tensile strength and four grades of grey cast iron by a classification based on Brinell hardness.

This European Standard specifies also the straightness of the bars.

This European Standard does not cover technical delivery conditions for iron castings (see EN 1559-1 [5] and EN 1559-3 [6]).

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10204, *Metallic products - Types of inspection documents*

EN ISO 945-1, *Microstructure of cast irons - Part 1: Graphite classification by visual analysis (ISO 945-1)*

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

EN ISO 6892-1, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1)*

## 3 Terms and definitions

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

### 3.1

#### **grey cast iron**

cast material, mainly iron and carbon based, carbon being present mainly in the form of flake (lamellar) graphite particles

[SOURCE: EN 1561:2011-10, 3.1]

Note 1 to entry: Grey cast iron is also known as flake graphite cast iron, and less commonly as lamellar graphite cast iron.

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**3.2 spheroidal graphite cast iron**  
cast material, iron, carbon and silicon based, the carbon being present mainly in the form of spheroidal graphite particles

[SOURCE: EN 1563:2011-12, 3.1]

Note 1 to entry: Spheroidal graphite cast iron is also known as ductile iron, and less commonly as nodular iron.

**3.3 ferritic to pearlitic cast irons**  
grey cast iron and spheroidal graphite cast iron with a matrix containing ferrite or pearlite or a combination of both

**3.4 solid-solution strengthened ferritic spheroidal graphite cast iron**  
spheroidal graphite cast iron with a matrix mainly consisting of ferrite, solution strengthened mainly by silicon

**3.5 graphite spheroidizing treatment**  
operation that brings the liquid iron into contact with a substance to produce graphite in the predominantly spheroidal (nodular) form during solidification

[SOURCE: EN 1563:2011-12, 3.4]

Note 1 to entry: This operation is often followed by a second one called inoculation.

**3.6 sample**  
quantity of material cut from the continuous cast bar to represent the cast material

## 4 Designation

The material shall be designated in accordance with Tables 1, 2, or 3.

NOTE The designation system is specified in EN 1560 [7].

## 5 Order information

The following information shall be supplied by the purchaser:

- a) the number of this European Standard;
- b) the designation of the material;
- c) the dimensions of the bar;
- d) any special requirements.

All requirements shall be agreed between the manufacturer and the purchaser by the time of acceptance of the order, e.g. technical delivery conditions according to EN 1559-1 and EN 1559-3.

## 6 Manufacture

The methods of producing grey cast iron and spheroidal graphite cast iron continuous cast bars and their chemical compositions, shall be left to the discretion of the manufacturer who shall ensure that the requirements of this European Standard are met for the material grade specified in the order.