

**Metallivalu. Vermikulaarmalm**

**Founding - Compacted (vermicular) graphite cast irons**

## EESTI STANDARDI EESSÕNA

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English Version

## Founding - Compacted (vermicular) graphite cast irons

Fonderie - Fontes à graphite vermiculaire (compacté)

Gießereiwesen - Gusseisen mit Vermiculargraphit

This European Standard was approved by CEN on 1 October 2011.

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## Foreword

This document (EN 16079:2011) 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of an identical text or by endorsement, at the latest by May 2012, and conflicting national standards shall be withdrawn at the latest by May 2012.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.

Within its programme of work, Technical Committee CEN/TC 190 requested CEN/TC 190/WG 5 "Grey cast iron and compacted graphite cast iron" to prepare EN 16079.

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## Introduction

This European Standard classifies compacted (vermicular) graphite cast irons (CGI), in accordance with the mechanical properties of the material.

The properties of compacted (vermicular) graphite cast irons depend on their graphite and matrix microstructure.

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 or
- samples cut from a casting.

Annex A (informative) gives additional information on properties and typical applications of compacted (vermicular) graphite cast irons.

## 1 Scope

This European Standard defines the grades and the corresponding requirements for compacted (vermicular) graphite cast irons.

This European Standard specifies 5 grades of compacted (vermicular) graphite cast iron by a classification based on mechanical properties measured on machined test pieces prepared from cast samples.

This European Standard does not cover technical delivery conditions for iron castings (see EN 1559-1 [1] and EN 1559-3 [2]).

## 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.

EN 10204, *Metallic products — Types of inspection documents*.

EN ISO 945-1, *Microstructure of cast irons — Part 1: Graphite classification by visual analysis (ISO 945-1:2008)*

EN ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method (ISO 6506-1:2005)*

EN ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1:2009)*

## 3 Terms and definitions

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

### 3.1

#### **compacted (vermicular) graphite cast iron**

cast material, iron and carbon based, the carbon being present mainly in the form of compacted (vermicular) graphite particles that appear vermicular on a two-dimensional plane of polish, the graphite particles being embedded in a matrix consisting of ferrite, ferrite/pearlite, or pearlite

### 3.2

#### **graphite modification treatment**

process that brings the liquid iron into contact with a substance to produce graphite in the predominantly compacted (vermicular) form during solidification

### 3.3

#### **vermicularity**

percentage of graphite particles that are of form III according EN ISO 945-1

### 3.4

#### **cast sample**

quantity of material cast to represent the cast material, including separately cast sample, side by side cast sample and cast-on sample

### 3.5

#### **separately cast sample**

sample cast in a separate sand mould under representative manufacturing conditions and material grade

### 3.6

#### **side-by-side cast sample**

sample cast in the mould alongside the casting, with a joint running system