


**Spheroidal graphite cast iron for the wind industry**

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## INTRODUCTION

The primary focus of this document is components made of spheroidal graphite cast iron used in the wind industry, with the related load and stress relevant there. For material grade sensitive demands relevant material grades are listed in the tables when needed.

# INDUSTRY STANDARD REQUIREMENTS FOR IRON CASTINGS

## 1 Scope

This document describes all technical requirements aimed at components made for the wind industry of spheroidal graphite cast iron material grades. Surface treatment is not covered in this document.

Any specification concerning liability, ownership, design changes, supplier quality, supplier quality management system or commercial details shall be covered by a wind turbine OEM Purchase Agreement or a similar agreement.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest issued edition of the referenced document (including any amendments) applies.

**Table 2.1: Normative References.**

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|---|---|
| EN 1563:2018 | Founding - Spheroidal graphite cast irons. |
| EN 1560:2011 | Founding - Designation system for cast irons - Material symbols and material number |
| ISO 6892-1 | Metallic materials — Tensile testing — Part 1: Method of test at room temperature |
| ASTM E466-15 | Standard Practice for Conducting Force Controlled Constant Amplitude Axial Fatigue Tests of Metallic Materials |
| EN12680-3:2011 | Founding - Ultrasonic testing - Part 3: Spheroidal graphite cast iron castings. |
| EN 1369:2012 | Founding - magnetic particle inspection |
| EN 10204:2017 | Metallic products - Types of inspection documents |
| ISO 8062-3 | Geometrical Product Specifications (GPS) - Dimensional and geometrical tolerances for moulded parts - Part 3: General dimensional and geometrical tolerances and machining allowances for castings |
| EN 1370 | Founding - Examination of surface condition |
| ISO 945-1:2019 | Microstructure of cast irons - Part 1: Graphite classification by visual analysis |
| ISO 148-1 | Metallic materials - Charpy pendulum impact test - Part 1: Test method |
| ASTM E399-12E3 | Standard Test Method for Linear-Elastic Plane-Strain Fracture Toughness KIC of Metallic Materials |
| ASTM E647-15E1 | Standard Test Method for Measurement of Fatigue Crack Growth Rates |
| ISO 12107 | Metallic materials — Fatigue testing — Statistical planning and analysis of data |
| ISO 12108 | Metallic materials — Fatigue testing — Fatigue crack growth method |
| ISO 1143 | Metallic materials — Rotating bar bending fatigue testing |
| EN 1371-1:2011 | Founding – Liquid penetrant testing |
| EN 13018 | Non-destructive testing – visual testing – general principles |