

**Terased. Tera näivsuuruse mikrograafiline määramine
(ISO 643:2012)**

**Steels - Micrographic determination of the apparent
grain size (ISO 643:2012)**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 643:2012 sisaldab Euroopa standardi EN ISO 643:2012 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 643:2012 consists of the English text of the European standard EN ISO 643:2012.
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ICS 77.040.99

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English Version

Steels - Micrographic determination of the apparent grain size (ISO 643:2012)

Aciers - Détermination micrographique de la grosseur de grain apparente (ISO 643:2012)

Stahl - Mikrophotographische Bestimmung der scheinbaren Korngröße (ISO 643:2012)

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Foreword

This document (EN ISO 643:2012) has been prepared by Technical Committee ISO/TC 17 "Steel" in collaboration with Technical Committee ECISS/TC 101 "Test methods for steel (other than chemical analysis)" the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by June 2013, and conflicting national standards shall be withdrawn at the latest by June 2013.

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Endorsement notice

The text of ISO 643:2012 has been approved by CEN as a EN ISO 643:2012 without any modification.

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Steels — Micrographic determination of the apparent grain size

1 Scope

This International Standard specifies a micrographic method of determining apparent ferritic or austenitic grain size in steels. It describes the methods of revealing grain boundaries and of estimating the mean grain size of specimens with unimodal size distribution. Although grains are three-dimensional in shape, the metallographic sectioning plane can cut through a grain at any point from a grain corner, to the maximum diameter of the grain, thus producing a range of apparent grain sizes on the two-dimensional plane, even in a sample with a perfectly consistent grain size.

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.

ISO 3785, *Steel — Designation of test piece axes*

ISO 14250, *Steel — Metallographic characterization of duplex grain size and distributions*

ASTM E112, *Standard Test Methods for Determining Average Grain Size*

3 Terms and definitions

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

3.1

grain

closed polygonal shape with more or less curved sides, which can be revealed on a flat cross-section through the sample, polished and prepared for micrographic examination

A distinction is made between:

3.1.1

austenitic grain

crystal with a face-centered cubic crystal structure which may, or may not, contain annealing twins

3.1.2

ferritic grain

crystal with a body-centered cubic crystal structure which never contains annealing twins¹⁾

1) Ferritic grain size is generally estimated for non-alloy steels with a carbon content of 0,25 % or less. If pearlite islands of identical dimensions to those of the ferrite grains are present, the islands are then counted as ferrite grains.