

## BSI Standards Publication

### Founding — Examination of surface condition



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National foreword

This British Standard is the UK implementation of EN 1370:2026. It supersedes BS EN 1370:2011, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ISE/111, Steel Castings and Forgings.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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## EUROPÄISCHE NORM

August 2026

ICS 17.040.20; 77.180

Supersedes EN 1370:2011

English Version

## Founding - Examination of surface condition

Fonderie - Contrôle de l'état de surface

Gießereiwesen - Bewertung des Oberflächenzustandes

This European Standard was approved by CEN on 19 July 2026.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (EN 1370:2026) 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of an identical text or by endorsement, at the latest by February 2027 and conflicting national standards shall be withdrawn at the latest by February 2027.

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 1370:2011.

Annex A, Table A.1 provides details of significant technical changes between this document and the previous edition.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

## Introduction

The surface roughness of a casting is influenced by the manufacturing process (moulding, grinding, finishing, etc.), the moulding materials used (sand, coating, etc.), the production equipment available and the alloy cast.

Depending on the applications of the casting, the surface requirements are related to mechanical loadings, appearance, surface treatment, etc.

Since cast surfaces do not exhibit the same cyclic character as machined surfaces, it is difficult to evaluate their roughness using conventional mechanical, optical, or pneumatic devices. Other optical/electronic means are now available for measuring surface roughness of cast surfaces. For the ease of use, visual tactile comparators are preferred.

Moreover, in order to take into account the irregularities on as-cast surfaces, ground surfaces or other means of finishing of castings, comparators should have relatively large dimensions<sup>1</sup> in order to make them more reliable and their results repeatable and consistent.

Two sets of comparators are in widespread use:

- “BNIF 359 Recommandation technique du Bureau de Normalisation des Industries de la Fonderie. Caractérisation d'états de surface des pièces moulées — Utilisation des échantillons types de 110 × 160 mm”, available from CETIM, KMØ - 30 rue François Spoerry, 68100 Mulhouse, France [1];
- “SCRATA comparators for the definition of surface quality of steel and iron castings”, ASTM A 802 Shorter Set, available from Castings Technology International, Advanced Manufacturing Park, Brunel Way, Rotherham, S60 5WG, South Yorkshire, United Kingdom [2].

A third set of comparators, for precision steel castings, is also available:

- “SCRATA surface comparators for the definition of surface texture of precision steel castings”, precision set, available from Castings Technology International, Advanced Manufacturing Park, Brunel Way, Rotherham, S60 5WG, South Yorkshire, United Kingdom [3].

This document also specifies 8 levels of surface imperfections based on maximum dimensions to be detected by visual examination.

The SCRATA comparators shorter set [2], can also be used for the classification of surface discontinuities on steel and iron castings.

BNIF N°359 comparators can be used for all cast metals.

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<sup>1</sup> 100 mm × 150 mm for SCRATA comparators; 110 mm × 160 mm for BNIF comparators.

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## 1 Scope

This document specifies methods for the examination of surface condition (roughness and surface discontinuities) of castings on surfaces that remain as-cast.

This document is applicable to all cast metals and all casting processes except die casting.

This document is not applicable to machined surfaces.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

## 4 Comparators

The comparators are essentially positive replicas of actual casting surfaces: as-cast or after further fettling treatment such as shot blasted or ground.

Full size photographs of the comparators can be used to assist in making a rapid evaluation of the overall roughness of the comparators. These can give preliminary information for the appropriate selection of a moulding or finishing process.

It is emphasized however that the comparators, and not the photographs, shall be used to form the basis of an agreement at the time of ordering.

An overview and a comparison of the different categories and levels of the three sets of comparators are given in Tables 1, 2 and 4.

## 5 Requirements

### 5.1 General

When examination of surface conditions is required, the following shall be as agreed at the time of ordering:

- category and severity level required;

More than one severity level can be specified for different surfaces of the same casting. This shall be clearly indicated on the drawing.

- any types of discontinuities which are unacceptable;
- areas of the castings which are to be examined;

The areas of the castings to be examined shall be clearly indicated on the drawing.

- number of castings to be examined;
- manufacturing stage at which surfaces are to be examined.