
**Steel and iron castings — Visual
examination of surface quality**

*Pièces moulées en acier ou en fonte — Examen visuel de l'état de
surface*



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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 11971 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 11, *Steel castings*.

This second edition cancels and replaces the first edition (ISO 11971:1997), which has been technically revised.

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 equipment available and the alloy cast.

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.

The use of visual/tactile comparators is therefore preferred in these circumstances.

Moreover, in order to take account of the irregularities on as-cast surfaces, ground surfaces or other means of finishing of castings, comparators should have relatively large dimensions (greater than or equal to 15 000 mm²) in order to make them more reliable and their results repeatable and consistent.

Two sets of comparators are in widespread use:

- *SCRATA comparators for the definition of surface quality of steel castings*, available from Steel Castings Technology International, 7 East Bank Road, Sheffield S2 3PT, United Kingdom;
- *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 Editions Techniques des Industries de la Fonderie, 44 avenue de la Division Leclerc, 92310 Sèvres, France.

Steel and iron castings — Visual examination of surface quality

1 Scope

1.1 This International Standard covers the acceptance criteria for the surface inspection of steel and iron castings by visual examination.

1.2 Acceptance levels utilize Bureau de Normalisation des Industries de la Fonderie (BNIF) and Steel Castings Research and Trade Association (SCRATA) reference comparators for the visual determination of surface roughness and surface discontinuities described as follows:

- surface roughness;
- thermal dressing;
- mechanical dressing;
- nonmetallic inclusions;
- gas porosity;
- fusion discontinuities;
- expansion discontinuities;
- metal inserts.

2 Ordering information

The enquiry and order should specify the following information:

- the casting areas where the surface is to be examined should be clearly indicated on the drawing;
- the number of castings to be examined;
- the acceptance level: more than one acceptance level may be specified for different surfaces of the same casting;
- if any types of discontinuities are unacceptable.

3 Acceptance standards

The SCRATA comparator set may be used for steel castings only.

The BNIF comparator set S1 and S2 categories may be used for all alloys. Category S3 may be used for steel castings only.