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Steel and iron castings — Visual examination of surface quality

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



Reference number ISO 11971:2008(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

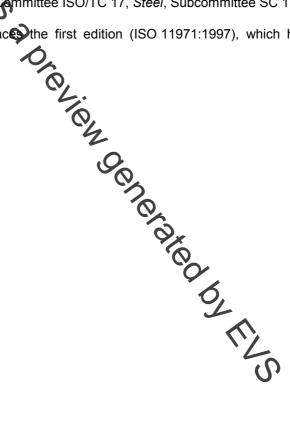
International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

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

This second edition cancels and replace 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.

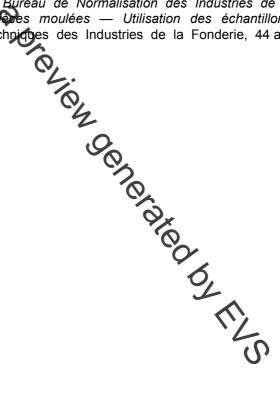
Since cast surfaces do not exhibit the same cyclic character as machined surfaces, it is difficult to evaluate their roughness using conventional mechanical, optical, or pneumatic devices.

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 pores 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

Scope 1

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

1.2 Acceptance levels utilize Bureau de Normalisation des Industries de la Fonderie (BNIF) and Steel Castings Research and Table Association (SCRATA) reference comparators for the visual determination of isc. hent is a preview generated scler 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.

Acceptance standards 3

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.