
**Visual examination of the surface
condition of investment castings — Steel,
nickel alloys and cobalt alloys**

*Examen visuel de l'état de surface des pièces moulées par le procédé
dit «à la cire perdue» — Acier, alliages de nickel et alliages de cobalt*

STANDARDSISO.COM : Click to view the full PDF of ISO 19959:2005



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

STANDARDSISO.COM : Click to view the full PDF of ISO 19959:2005

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

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 19959 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 11, *Steel castings*.

STANDARDSISO.COM : Click to view the full PDF of ISO 19959:2005

Visual examination of the surface condition of investment castings — Steel, nickel alloys and cobalt alloys

1 Scope

This International Standard specifies the acceptance criteria for the surface inspection of steel, nickel alloy and cobalt alloy investment castings by visual examination.

NOTE Criteria for special applications such as aerospace are defined in other International Standards.

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 3059:2001, *Non-destructive testing — Penetrant testing and magnetic particle testing — Viewing conditions*

ISO 9712:2005, *Non-destructive testing — Qualification and certification of personnel*

3 Ordering information

The enquiry and order shall specify

- the extent of the surface to be examined,
- the number of castings to be examined,
- the acceptance level required (different acceptance levels may be specified for different surfaces of the same casting; if no acceptance level is specified, level IV applies), and
- any surface conditions that are unacceptable.

4 Terms and definitions

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

4.1

surface pit

depression on the surface of the casting, the length of the depression being less than three times its width

4.2

linear discontinuity

depression on the surface of the casting, the length of the depression being equal to, or greater than, three times its width

4.3

positive metal

raised metal on the casting surface

4.4

surface roughness

measure of the surface condition

NOTE The surface roughness is normally determined by the use of a visual/tactile comparator.

4.5

parting line

surface condition resulting from joints in the tool or die

NOTE Parting lines are not linear discontinuities.

4.6

ejector-pin mark

a surface condition caused by pins used to remove the pattern from the die

4.7

gate stub

positive metal resulting from the removal of the gate used to direct molten metal into the mould

5 Method of inspection

5.1 Qualification of operators

Inspection shall be performed by personnel, qualified in accordance with ISO 9712, or by a certification scheme which is considered to be equivalent. The qualification level of the personnel shall be agreed between the manufacturer and the purchaser at the time of acceptance of the order.

5.2 Conditions of inspection

The inspection shall be carried out with the naked eye or at a maximum magnification of $\times 3$, and the viewing conditions shall be in conformity with ISO 3059.

6 Acceptance criteria

6.1 Levels of acceptance for visual examination are given in Table 1.

6.2 Castings shall not exhibit linear discontinuities. Surface conditions that are less than 0,25 mm are non-relevant.