



NSAI
Standards

Irish Standard
I.S. EN 1371-2:2015

Founding - Liquid penetrant testing - Part 2: Investment castings

I.S. EN 1371-2:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

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Gießereiwesen - Eindringprüfung - Teil 2: Feingussstücke

This European Standard was approved by CEN on 12 December 2014.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EN 1371-2:2015 (E)

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Foreword

This document (EN 1371-2:2015) 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of an identical text or by endorsement, at the latest by July 2015, and conflicting national standards shall be withdrawn at the latest by July 2015.

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

This document supersedes EN 1371-2:1998.

Within its programme of work, Technical Committee CEN/TC 190 requested CEN/TC 190/WG 11 "Surface inspection" to revise the following standard:

— EN 1371-2:1998, *Founding — Liquid penetrant inspection — Part 2: Investment castings*

This is one of two European Standards for liquid penetrant testing for castings.

The other standard is:

— EN 1371-1, *Founding — Liquid penetrant testing — Part 1: Sand, gravity die and low pressure die castings*.

Annex F provides details of significant technical changes between this European Standard and the previous edition.

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

EN 1371-2:2015 (E)

Introduction

This European Standard complements the general principles of liquid penetrant testing given in EN ISO 3452-1 for the additional requirements for investment castings.

The structure of this European Standard is similar to that of EN 1371-1:2011, *Founding — Liquid penetrant testing — Part 1: Sand, gravity die and low pressure die castings* [1].

It has been written to take account of the difference of dimension of the reference area and the difference of nature of discontinuities with regard to other casting processes for which EN 1371-1 is applicable.

Liquid penetrant testing as well as any other non-destructive examination method is part of a general or specific assessment of the quality of a casting to be agreed between the manufacturer and the purchaser at the time of acceptance of the order.

1 Scope

This European Standard specifies a liquid penetrant testing method for castings produced by investment casting for general purposes.

NOTE Investment casting is sometimes referred to as lost-wax casting.

This European Standard applies to all cast metals, except copper-tin and/or copper-tin-lead alloy castings, where copper is the major constituent (see EN 1982 [3]).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1370, *Founding — Examination of surface condition*

EN 4179, *Aerospace series — Qualification and approval of personnel for non-destructive testing*

EN ISO 3059, *Non-destructive testing — Penetrant testing and magnetic particle testing — Viewing conditions (ISO 3059)*

EN ISO 3452-1, *Non-destructive testing — Penetrant testing — Part 1: General principles (ISO 3452-1)*

EN ISO 3452-2, *Non-destructive testing — Penetrant testing — Part 2: Testing of penetrant materials (ISO 3452-2)*

EN ISO 3452-5, *Non-destructive testing — Penetrant testing — Part 5: Penetrant testing at temperatures higher than 50 degrees C (ISO 3452-5)*

EN ISO 3452-6, *Non-destructive testing — Penetrant testing — Part 6: Penetrant testing at temperatures lower than 10 degrees C (ISO 3452-6)*

EN ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel (ISO 9712)*

3 Conditions for liquid penetrant testing

The manufacturing stage(s) when liquid penetrant testing is to be performed shall be clearly defined by agreement between the manufacturer and the purchaser by the time of ordering.

The methods detailed in this standard shall only apply to the agreed surfaces of castings and the percentage or number of castings to be checked.

For each agreed area of the casting to be inspected, the following shall be indicated:

- type of discontinuity;
- severity level.

This information enables the manufacturer to assess the additional testing and operations involved.

Sensitivity can differ depending on the method of liquid penetrant testing selected and surface conditions, the application of the casting (e.g. increased wear, safety related component) and its manufacture stage. Therefore the liquid penetrants used and the method agreed shall fit to detect the minimum required severity level.

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