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**BS EN 10228-2:2016**



**BSI Standards Publication**

# **Non-destructive testing of steel forgings**

Part 2: Penetrant testing

**bsi.**

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This British Standard is the UK implementation of EN 10228-2:2016. It supersedes BS EN 10228-2:1998 which is withdrawn.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 secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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## EUROPÄISCHE NORM

June 2016

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English Version

## Non-destructive testing of steel forgings - Part 2: Penetrant testing

Essais non destructifs des pièces forgées en acier -  
Partie 2 : Contrôle par ressuage

Zerstörungsfreie Prüfung von Schmiedestücken aus  
Stahl - Teil 2: Eindringprüfung

This European Standard was approved by CEN on 3 October 2015.

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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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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<b>Contents</b>	<b>Page</b>
<b>European foreword</b> .....	<b>3</b>
<b>1 Scope</b> .....	<b>4</b>
<b>2 Normative references</b> .....	<b>4</b>
<b>3 Terms and definitions</b> .....	<b>4</b>
<b>4 Items for agreement</b> .....	<b>4</b>
<b>5 Test procedure</b> .....	<b>5</b>
<b>5.1 General</b> .....	<b>5</b>
<b>5.2 Description</b> .....	<b>5</b>
<b>5.3 Content</b> .....	<b>5</b>
<b>6 Personnel qualification</b> .....	<b>6</b>
<b>7 Testing system</b> .....	<b>6</b>
<b>7.1 Testing products</b> .....	<b>6</b>
<b>7.2 Equipment</b> .....	<b>6</b>
<b>7.3 Function test</b> .....	<b>6</b>
<b>8 Stage of manufacture</b> .....	<b>6</b>
<b>9 Surface condition</b> .....	<b>6</b>
<b>10 Coverage</b> .....	<b>7</b>
<b>11 Penetrant testing process</b> .....	<b>7</b>
<b>12 Viewing</b> .....	<b>7</b>
<b>12.1 General</b> .....	<b>7</b>
<b>12.2 Viewing conditions</b> .....	<b>7</b>
<b>13 Classification of indications</b> .....	<b>7</b>
<b>14 Recording and acceptance criteria</b> .....	<b>9</b>
<b>15 Removal of defects</b> .....	<b>10</b>
<b>16 Cleaning</b> .....	<b>10</b>
<b>17 Test report</b> .....	<b>11</b>
<b>Annex A (informative) Significant technical changes to the version EN 10228-2:1998</b> .....	<b>12</b>

This is a preview of "BS EN 10228-2:2016". [Click here to purchase the full version from the ANSI store.](#)

## European foreword

This document (EN 10228-2:2016) has been prepared by Technical Committee ECISS/TC 111 "Steel castings and forgings", the secretariat of which is held by AFNOR.

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 December 2016 and conflicting national standards shall be withdrawn at the latest by December 2016.

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 10228-2:1998.

Annex A provides the significant technical changes to the previous version EN 10228-2:1998.

EN 10228 consists of the following parts under the general title *Non-destructive testing of steel forgings*:

- *Part 1: Magnetic particle inspection;*
- *Part 2: Penetrant testing;*
- *Part 3: Ultrasonic testing of ferritic or martensitic steel forgings;*
- *Part 4: Ultrasonic testing of austenitic and austenitic-ferritic stainless steel forgings.*

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.

## 1 Scope

This European Standard describes techniques and acceptance criteria to be used for the penetrant testing of steel forgings. The method described is used for the detection of surface discontinuities.

## 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 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 3452-4, *Non-destructive testing — Penetrant testing — Part 4: Equipment (ISO 3452-4)*

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

EN ISO 12706:2009, *Non-destructive testing — Penetrant testing — Vocabulary (ISO 12706:2009)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12706:2009 apply.

## 4 Items for agreement

The following aspects concerning penetrant testing shall be agreed between the purchaser and the supplier at the time of enquiry and order:

- a) the manufacturing stage(s) at which penetrant testing shall be performed (see Clause 8);
- b) the areas to be examined;
- c) whether testing shall be performed with colour contrast or fluorescent penetrants (see 7.1);
- d) the quality class required, or the quality classes and surfaces areas to which they apply (see Clause 14);
- e) the applicable recording and acceptance criteria if different from those detailed in Table 2;
- f) whether the test shall be conducted in the presence of the purchaser or his representative;
- g) whether a written procedure shall be submitted for approval by the purchaser. (see Clause 5);