BS EN 10228-1:2016

BSI Standards Publication

Non-destructive testing of steel forgings

Part 1: Magnetic particle inspection

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National foreword

This British Standard is the UK implementation of EN 10228-1:2016. It supersedes BS EN 10228-1:1999 which is withdrawn.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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ISBN 978 0 580 80529 5

ICS 77.040.20; 77.140.85

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2016.

Amendments issued since publication

Date	Text affected

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 10228-1

June 2016

ICS 77.040.20; 77.140.85

Supersedes EN 10228-1:1999

English Version

Non-destructive testing of steel forgings - Part 1: Magnetic particle inspection

Essais non destructifs des pièces forgées - Partie 1 : Contrôle par magnétoscopie

Zerstörungsfreie Prüfung von Schmiedestücken aus Stahl - Teil 1: Magnetpulverprüfung

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

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Full document details: BS EN 10228-1:2016

Contents

Page

European foreword ... 3
1 Scope ... 4
2 Normative references ... 4
3 Items for agreement ... 4
4 Test procedure ... 5
4.1 General ... 5
4.2 Description ... 5
4.3 Content ... 5
5 Personnel qualification ... 6
6 Testing system ... 6
6.1 Magnetizing equipment ... 6
6.2 Detection media ... 6
6.3 Function checks ... 6
7 Stage of manufacture ... 6
8 Surface condition ... 7
8.1 General ... 7
8.2 Surface condition related to quality class ... 7
8.3 As-forged surface condition ... 7
9 Coverage ... 7
10 Magnetization ... 7
10.1 Direction of magnetization ... 7
10.2 Current waveform ... 8
10.3 Flux density and field strength ... 8
11 Use of detection media ... 8
12 Viewing conditions ... 8
13 Classification of indications ... 9
14 Recording and acceptance criteria ... 10
15 Removal of defects ... 11
16 Demagnetization ... 11
17 Test report ... 11
Annex A (normative) Magnetization using prods or electromagnetic yoke ... 13
A.1 Definition of tested area with prods or yoke ... 13
A.2 Definition of search pattern and examination sequence ... 14
Annex B (informative) Significant technical changes to the version EN 10228-1:1999 ... 15

Documents
Document Sharing Hub
Full document details: BS EN 10228-1:2016

European foreword

This document (EN 10228-1:2016) 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 10228-1:1999.

Annex B provides the significant technical changes to the previous version EN 10228-1:1999.

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.*

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1 Scope

This European Standard describes techniques and acceptance criteria to be used for the magnetic particle testing of forgings manufactured from ferromagnetic materials. The method described is used for the detection of surface discontinuities. It can also detect discontinuities just below the surface but the sensitivity to such discontinuities decreases rapidly with depth.

NOTE A steel forging is considered to be ferromagnetic if the magnetic flux density is greater than 1 T for a tangential magnetic field strength of 2,4 kA/m.

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

EN ISO 9934-1, *Non-destructive testing — Magnetic particle testing — Part 1: General principles (ISO 9934-1)*

EN ISO 9934-2, *Non-destructive testing — Magnetic particle testing — Part 2: Detection media (ISO 9934-2)*

EN ISO 9934-3, *Non-destructive testing — Magnetic particle testing — Part 3: Equipment (ISO 9934-3)*

3 Items for agreement

The following aspects concerning magnetic particle inspection shall be agreed between the purchaser and the supplier at the time of enquiry and order:

a) the manufacturing stages(s) at which magnetic particle inspection shall be performed (see Clause 7);

b) the surface areas to be examined (see Clause 8);

c) the quality class required, or the quality classes and the surface areas to which they apply (see 8.2 and Clause 14);

d) whether the testing shall be performed with the specified detection media (see 6.2);

e) whether a particular current waveform is required (see 10.2);

f) the applicable recording and acceptance criteria if different from those detailed in Table 2.

g) whether demagnetization shall be carried out after testing, together with the maximum level of residual magnetism (see Clause 16);

h) whether testing shall be conducted in the presence of the purchaser or his representative;

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