BS EN 10228-1:2016

BSI Standards Publication

Non-destructive testing of steel forgings

Part 1: Magnetic particle inspection

bsi.

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 It supersedes BS EN 10228-1:1999 which is withdrawn.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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Compliance with a British Standard cannot confer immunity from legal obligations.

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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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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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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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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of an identical text or by endorsement, at the latest by December 2016 and conflicting national standards shall be withdrawn at the latest by December 2016.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.*

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 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;