

Quenched and tempered steels —

Part 3: Technical delivery conditions for boron steels

The European Standard EN 10083-3:1995 has the status of a
British Standard

ICS 77.140.10

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee ISE/31, Wrought steels, upon which the following bodies were represented:

- Associated Offices Technical Committee
- British Chain Manufacturers' Association
- British Coal Corporation
- British Forging Industry Association
- British Industrial Fasteners Federation
- British Railways Board
- British Steel Industry
- Cold Rolled Sections Association
- Department of Trade and Industry (National Physical Laboratory)
- Engineering Industries Association
- Federation of British Engineers' Tool Manufacturers
- Lloyd's Register of Shipping
- Ministry of Defence
- National Association of Steel Stockholders
- Road Vehicle Spring Society
- Society of Motor Manufacturers and Traders Ltd.
- Stainless Steel Fabricators Association of Great Britain

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National foreword

This British Standard has been prepared by Technical Committee ISE/31 and is the English language version of EN 10083-3:1995 *Quenched and tempered steels — Part 3: Technical delivery conditions for boron steels* published by the European Committee for Standardization (CEN).

This British Standard specifies the requirements for boron steels formerly contained in BS 970-1:1991 *Specification for wrought steels for mechanical and allied engineering purposes — General inspection and testing procedures and specific requirements for carbon, carbon manganese, alloy and stainless steels*. BS 970-1 has been amended and re-issued as a new edition simultaneously with this standard.

Cross-references

Publication referred to	Corresponding British Standard
EN 10003-1:1994	BS EN 10003 <i>Metallic materials</i> <i>Part 1:1995 Brinell hardness test — Test methods</i>
EURONORM 23	BS 4437:1987 <i>Method for determining hardenability of steel by end quenching (Jominy test)</i> .
EURONORM 103	BS 4490:1989 <i>Methods for micrographic determination of the grain size of steel</i>
EURONORM 104:1970	BS 6617 <i>Determination of decarburization in steel</i> <i>Part 1:1985 Methods for determining decarburization by microscopic and micro-hardness techniques</i>
EN 10020:1988	BS EN 10020:1991 <i>Definition and classification of grades of steel</i>
EN 10021:1993	BS EN 10021:1993 <i>General technical delivery requirements for steel and iron products</i>
EN 10052:1993	BS EN 10052:1994 <i>Vocabulary of heat treatment terms for ferrous products</i>
EN 10079:1992	BS EN 10079:1993 <i>Definition of steel products</i>
EN 10109-1:1994	BS EN 10109 <i>Metallic materials</i> <i>Part 1: Hardness test</i>

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 24, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporate. This will be indicated in the amendment table on the inside front cover.

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Descriptors: Iron- and steel products, hot rolled products, metal bars, metal plates, steel strips, strips, quenching (cooling), tempering, designation, specifications, delivery condition, surface condition, grades: quality, chemical composition, inspection, tests, marking

English version

Quenched and tempered steels — Part 3: Technical delivery conditions for boron steels

Aciers pour trempe et revenu — Partie 3:
Conditions techniques de livraison des aciers au
bore

Vergütungsstähle — Teil 3: Technische
Lieferbedingungen für Borstähle

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Foreword

This European Standard has been prepared by Technical Committee ECISS/TC 23, Steels for heat treatment, alloy steels and free-cutting steels — Qualities, the Secretariat of which is held by DIN.

When the European Committee for Iron and Steel Standardization (ECISS) was formed and its programme of work drawn up, Technical Committee TC 23 was requested to replace Euronorm 83-70 *Quenched and tempered steels; quality specifications* by a European Standard.

During the work on EN 10083, *Quenched and tempered steels Part 1: Technical delivery conditions for special steels and Part 2: Technical delivery conditions for non-alloy quality steels*, it was decided to prepare a standard for boron-alloy quenched and tempered steels as Part 3 of EN 10083.

For the steels covered by EN 10083-3, no documentation currently exists for the mechanical properties in the quenched and tempered condition. Therefore, all users of this European Standard are urgently requested to collect the corresponding documents so that the relevant specifications can be included in the next edition of EN 10083-3.

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 March 1996, and conflicting national standards shall be withdrawn at the latest by March 1996.

According to the CEN/CENELEC internal regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

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1 Scope

1.1 This European Standard gives the technical delivery conditions for:

- semi-finished products, hot formed, for example blooms, billets, slabs (see notes 3 and 4);
- bars (see note 3);
- rod;
- wide flats;
- hot rolled sheet/plate and strip;
- hammer and drop forgings (see note 3)

manufactured from the boron-alloy quenched and tempered steels listed in Table 3 (see note 5), and supplied in one of the heat treatment conditions given for the different types of products in Table 1, lines 2 to 3 and in one of the surface conditions given in Table 2.

The steels are generally intended for the fabrication of quenched and tempered or austempered (see note 2) machine parts.

This European Standard is not applicable to steels for cold heading.

NOTE 1 Euronorms and European Standards on similar steel grades are listed in annex B.

NOTE 2 For purposes of simplification, the term “quenched and tempered”, unless otherwise indicated, is also used for the “austempered” condition.

NOTE 3 Hammer-forged semi-finished products (blooms, billets, slabs etc.) and hammer-forged bars are included under “semi-finished products” and “bars” and not under “hammer and drop forgings” in the following.

NOTE 4 Special agreements shall be made when ordering unformed continuously cast semi-finished products.

NOTE 5 In accordance with EN 10020, the steels covered by this European Standard are alloy special steels.

1.2 In special cases, variations in these technical delivery conditions or additions to them may form the subject of an agreement at the time of enquiry and order (see annex A).

1.3 In addition to the specifications of this European Standard, the general technical delivery conditions specified in EN 10021 are applicable unless otherwise specified below.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 10003-1, *Metallic materials – Hardness test — Brinell — Part 1: Test method*.

EURONORM 18¹⁾, *Selection and preparation of samples and test pieces for steel and iron and steel products*.

EURONORM 23¹⁾, *End quench hardenability test for steel (Jominy test)*.

EURONORM 103¹⁾, *Microscopic determination of the ferritic or austenitic grain size of steels*.

EURONORM 104¹⁾, *Determination of the depth of decarburization of non-alloy and low-alloy structural steels*.

EN 10020, *Definition and classification of grades of steel*.

EN 10021, *General technical delivery conditions for steel and iron and steel products* (at present at the stage of draft).

EN 10052, *Vocabulary of heat treatment terms for ferrous products* (at present at the stage of draft).

EN 10079, *Definition and classification of steel products*.

EN 10109-1, *Metallic materials — Hardness test — Part 1: Rockwell methods (scales A, B, C, D, E, F, G, H, K) and methods N and T (scales 15N, 30N, 45N, 15T, 30T, 45T)*.

EN 10163-2, *Delivery conditions for surface finish of hot rolled steel products (plates, wide flats and sections) — Part 2: Plates and wide flats*.

EN 10204, *Steel and steel products — Types of inspection documents*.

EN 10221, *Surface quality classes for hot-rolled bars and rods — Technical delivery conditions*.

¹⁾ It may be agreed at the time of ordering, until this EURONORM has been adopted as a European Standard, that either this EURONORM or a corresponding national standard may be applied.