

Steel rod, bars and wire for cold heading and cold extrusion —

Part 4: Technical delivery conditions for steels for quenching and tempering

The European Standard EN 10263-4:2001 has the status of a
British Standard

ICS 77.140.60; 77.140.65

National foreword

This British Standard is the official English language version of EN 10263-4:2001, including Corrigendum July 2002. Together with BS EN 10263-1:2001, BS EN 10263-2:2001 and BS EN 10263-3:2001 it supersedes BS 3111-1:1987, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ISE/71, Steel rods for wire drawing, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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This British Standard, having been prepared under the direction of the Engineering Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 August 2001

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 18, an inside back cover and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments
13452 Corrigendum No. 1	13 September 2001	Addition of supersession details
14045 Corrigendum No. 2	24 January 2003	Changes to Table 8 for steel grade 41CrS4 (+HL)

© BSI 24 January 2003

ISBN 0 580 37623 0

English version

Steel rod, bars and wire for cold heading and cold extrusion —
Part 4: Technical delivery conditions for steels for quenching and
tempering

Barres, fil machine et fils en acier pour transformation à
froid et extrusion à froid — Partie 4: Conditions techniques
de livraison des aciers pour trempe et revenu

Walzdraht, Stäbe und Draht aus Kaltstauch- und
Kaltfließpreßstählen — Teil 4: Technische
Lieferbedingungen für Vergütungsstähle

This European Standard was approved by CEN on 19 April 2001.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This European Standard has been prepared by Technical Committee ECISS/TC 15, Wire-rod - Qualities, dimensions, tolerances and specific tests, the Secretariat of which is held by UNI.

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 2001, and conflicting national standards shall be withdrawn at the latest by December 2001.

This European Standard EN 10263 is subdivided as follows:

- *Part 1: General technical delivery conditions;*
- *Part 2: Technical delivery conditions for steels not intended for heat treatment after cold working;*
- *Part 3: Technical delivery conditions for case hardening steels;*
- *Part 4: Technical delivery conditions for steels for quenching and tempering;*
- *Part 5: Technical delivery conditions for stainless steels.*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

1.1 This part of EN 10263 is applicable to round rod and round bars and wire with a diameter up to and including 100 mm, of non-alloy and alloy steel, intended for cold heading and cold extrusion and subsequent quenching and tempering.

1.2 This part of EN 10263 is complemented by EN 10263-1.

2 Normative references

This European Standard incorporates by date 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 date 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 (including amendments).

EN 10020	<i>Definitions and classification of grades of steel.</i>
EN 10263-1	<i>Steel rod, bars and wire for cold heading and cold extrusion — Part 1: General technical delivery conditions.</i>

3 Terms and definitions

For the purposes of this standard the definitions in EN 10263-1 and the following apply.

3.1

quenched and tempered steels

for the purpose of this European Standard quenched and tempered steels are engineering steels which, because of their chemical composition, are suitable for hardening and in the quenched and tempered condition have good toughness at a given tensile strength

4 Classification and designation

4.1 Classification

All steels covered by this part of EN 10263 are special steels according to EN 10020.

Steel grades from C35EC to C45RC as quoted in Table 2 are non-alloy steels and all others are alloy steels according to EN 10020.

4.2 Designation

See EN 10263-1:2001.

5 Production process

5.1 Steelmaking process

See EN 10263-1:2001.

5.2 Deoxidation

All steels shall be killed with aluminium and/or silicon. Aluminium and/or silicon may be replaced by another element having a similar effect.

6 Requirements

6.1 Delivery conditions

The delivery conditions in which the products covered by this part of EN 10263 are normally supplied, the product forms and the applicable requirements, are given in Table 1.

6.2 Chemical composition

6.2.1 Heat analysis

The chemical composition for the heat analysis shall be in accordance with the values specified in Table 2 and Table 3.

6.2.2 Product analysis

In cases where a product analysis is requested, the admissible deviations from the values specified for the cast/heat analysis are indicated in Table 4.

6.3 Mechanical properties

The mechanical properties of the products, to be determined by the tensile test, shall be in accordance with the prescriptions given in Table 1 for that which concerns the delivery condition, and in Tables 5 and 6.

6.4 Hardenability

6.4.1 In the case of products ordered with standard requirements regarding hardenability, that is, when the steel names or numbers as quoted in Tables 2 and 3 are supplemented by the symbol “+H”, the hardness values obtained in the end quench test (Jominy test) (see Table 1 of EN 10263-1:2001) shall be in compliance with the values given in Tables 7 and 9.

6.4.2 In the case of products ordered with restricted requirements regarding the scatter bands of the hardness values obtained by the Jominy test, that is when the steel name or number as quoted in Table 2 is supplemented by the symbol “+HH” or “+HL”, the above hardness values shall be in compliance with the values given in Table 8.

NOTE 1 The symbol “+HH” denotes that the upper limit of the scatter band coincides with the upper limit for the corresponding steel “+H”.

NOTE 2 The symbol “+HL” denotes that the lower limit of the scatter band coincides with the lower limit for the corresponding steel “+H”.

NOTE 3 See EN 10263-1:2001, 7.7.4.

6.4.3 The austenitizing temperatures for the Jominy test are given in Tables 7, 8 and 9.