

SVENSK STANDARD

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Valstråd, stång och tråd av stål för kallstukning – Del 4: Tekniska leveransbestämmelser för seghärdningsstål

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

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Denna standard ersätter SS-EN 10263-4, utgåva 1 och SS-EN 10263-4/AC:2002, utgåva 1.

The European Standard EN 10263-4:2017 has the status of a Swedish Standard. This document contains the official version of EN 10263-4:2017.

This standard supersedes the Swedish Standard SS-EN 10263-4, edition 1 and SS-EN 10263-4/AC:2002, edition 1.

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EUROPEAN STANDARD

EN 10263-4

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2017

ICS 77.140.60; 77.140.65

Supersedes EN 10263-4:2001

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 26 July 2017.

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

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

SS-EN 10263-4:2017 (E)

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European foreword

This document (EN 10263-4:2017) has been prepared by Technical Committee ECISS/TC 106 “Wire rod and wires”, 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of an identical text or by endorsement, at the latest by May 2018, and conflicting national standards shall be withdrawn at the latest by May 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 10263-4:2001.

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 organisations 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

SS-EN 10263-4:2017 (E)

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, cold extrusion, subsequent quenching and tempering or induction hardening or flame hardening.

1.2 EN 10263-1:2017 is indispensable for this part of EN 10263.

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 10020, *Definition and classification of grades of steel*

EN 10263-1:2017, *Steel rod, bars and wire for cold heading and cold extrusion — Part 1: General technical delivery conditions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 10263-1:2017 and the following apply.

3.1
quenched and tempered steels
engineering steels which, because of their chemical composition, are suitable for hardening and in the quenched and tempered condition to provide enhanced 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 3 are non-alloy steels and all others are alloy steels according to EN 10020.

4.2 Designation

See EN 10263-1:2017.

5 Production Process

5.1 Steelmaking process

See EN 10263-1:2017.

5.2 Deoxidation

All steels according to this part of EN 10263 shall be deoxidised.

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 Tables 1 and 2.

6.2 Chemical composition

6.2.1 Cast analysis

The chemical composition for the cast analysis shall be in accordance with the values specified in Tables 3 and 4.

6.2.2 Product analysis

In cases where a product analysis is requested, the permissible deviations from the values specified for the cast analysis are indicated in Table 5.

6.3 Mechanical properties

The mechanical properties of the products, to be determined by the tensile test, shall be in accordance with the Tables 6, 7 and 8 but by considering the prescriptions given in Table 1 and the delivery condition given in Table 2.

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 3 and 4 are supplemented by the symbol "+H", the hardness values obtained in the end quench test (Jominy test) (see Table 1 of EN 10263-1:2017) shall be in compliance with the values given in Tables 9 and 11.

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 3 is supplemented by the symbol "+HH" or "+HL", the above hardness values shall be in compliance with the values given in Table 10.

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 10263-1:2017, 7.7.4 and 10.2

6.4.3 The austenizing temperatures for the Jominy test are given in Tables 9, 10 and 11.

6.4.4 Core hardening

In the case of products ordered with requirements for core hardening, that is when the steel name or number, as quoted in Tables 3 and 4 is supplemented by the symbol "+CH", the core hardening temperature, the hardness values and the corresponding maximum diameters for the lowest hardenability shall be in compliance with the values given in Table 12.

6.5 Surface requirements

For any particular surface requirement to be agreed at the time of ordering, see EN 10263-1:2017, 7.10.

6.6 Supplementary or special requirements

Other requirements which can be agreed at the time of enquiry and order are described in EN 10263-1:2017, Annex A.

Table 1 — Summary of delivery conditions, product forms and applicable requirements

Heat-treatment condition at delivery	Symbol	Products form			Applicable requirements in cases where the steel concerned has been ordered with reference to the steel names indicated in								
		bar	rod	wire	Tables 3 and 4, 6 or 7 or 8		Tables 3 and 4, 6 or 7 or 8, 9 or 10 or 11			Tables 3 and 4, 6 or 7 or 8, 12			Tables 3,4,6,7,8,9, 10,11 or 12
untreated	None or +U	X	X	-	Chemical composition as specified in Tables 3 and 4	Mechanical properties as specified in Table 6 or 7 or 8	Chemical composition as specified in Tables 3 and 4	Mechanical properties as specified in Table 6 or 7 or 8	Values for hardenability according to Tables 9 or 10 or 11	Chemical composition as specified in Tables 3 and 4	Mechanical properties as specified in Table 6 or 7 or 8	Minimum core hardness and maximum diameter according to Table 12	Supplementary or special requirements as specified in Annex A of EN 10263-1 ^a
spheroidised	+AC	X	X	X									
Others	Other delivery conditions may be agreed at the time of ordering												
Key X = applicable - = not applicable													
^a If agreed at the time of the enquiry and order.													

Table 2 — Surface condition at delivery

Surface condition at delivery		Symbol	bar	rod	wire
Unless otherwise agreed	as rolled	none or +AR	x	x	-
Particular surface conditions supplied by agreement	cold drawn	+C	-	-	x
	skin passed	+LC	x	-	x
	peeled	+PE	x	x	x