
**Vroče valjana žica iz nelegiranega jekla za vlečenje in/ali hladno valjanje - 3. del:
Posebne zahteve za žico iz nepomirjenega in nepomirjenemu jeklu nadomestnega
maloogljičnega jekla**

Non-alloy steel rod for drawing and/or cold rolling - Part 3: Specific requirements for
rimmed and rimmed substitute low carbon steel rod

Walzdraht aus unlegiertem Stahl zum Ziehen und/oder Kaltwalzen - Teil 3: Besondere
Anforderungen an Walzdraht aus unberuhigtem und ersatzunberuhigtem Stahl mit
niedrigem Kohlenstoffgehalt (standards.iteh.ai)

Fil machine en acier non allié destiné au tréfilage et/ou au laminage à froid - Partie 3:
Prescriptions spécifiques au fil machine en acier effervescent à bas carbone

Ta slovenski standard je istoveten z: EN 10016-3:1994

ICS:

77.140.65	Jeklene žice, jeklene vrvi in verige	Steel wire, wire ropes and link chains
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SIST EN 10016-3:1997

en

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EUROPEAN STANDARD

EN 10016-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 1994

ICS 77.140.70

Descriptors: Iron and steel products, unalloyed steels, wire drawing, cold rolling, wire rod, low carbon steels, rimming steels, chemical composition, grades : quality, defects, inspection, mechanical properties

English version

**Non-alloy steel rod for drawing and/or cold rolling
- Part 3: Specific requirements for rimmed and
rimmed substitute low carbon steel rod**

Fil machine en acier non allié destiné au
tréfilage et/ou au laminage à froid - Partie 3:
Prescriptions spécifiques au fil machine en
acier effervescent ou pseudoeffervescent à bas
carbone

Walzdraht aus unlegiertem Stahl zum Ziehen
und/oder Kaltwalzen - Teil 3: Besondere
Anforderungen an Walzdraht aus unberuhigtem und
ersatzunberuhigtem Stahl mit niedrigem
Kohlenstoffgehalt

SIST EN 10016-3:1997

<https://standards.iteh.ai/catalog/standards/sist/3ccde17f-8605-4b46-a79a-984ac505ac52/sist-en-10016-3-1997>

This European Standard was approved by CEN on 1994-11-10. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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FOREWORD

This European Standard EN 10016 is subdivided as follows:

- Part 1 : General requirements
- Part 2 : Specific requirements for general purpose rod
- Part 3 : Specific requirements for rimmed and rimmed substitute low carbon steel rod
- Part 4 : Specific requirements for rod for special applications

This European Standard has been drawn up by ECISS/TC 15 "Wire-rod - Qualities, dimensions, tolerances and specific tests" whose Secretariat is held by UNI/UNSIDER.

Part 1-2-3 and 4 of this European Standard replace:

EURONORM 16(1987): "Non alloy steel wire rod for cold drawing and/ or cold rolling".

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 June 1995, and conflicting national standards shall be withdrawn at the latest by June 1995.

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.

1 SCOPE

This part of this European Standard is applicable to rod of low carbon, low silicon, rimmed and rimmed substitute steel with high ductility for drawing and/or cold rolling.

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.

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|-------------|--|
| EN 10016/1 | Non-alloy steel rod for drawing and/or cold rolling - Part 1 : General requirements |
| EN 10020 | Definition and classification of grades of steel |
| EN 10221 | Surface quality classes for hot rolled bars and rods - Technical delivery conditions |
| PrENV 10247 | Micrographic examination of the inclusion content of steels using standard pictures. |

3 REQUIREMENTS

For the general requirements see EN 10016 part 1.

3.1 Chemical composition

For the heat analysis, the values shown in table 1 apply. The permissible deviations of the product analysis in relation to the actual heat analysis are given in table 2.

Table 1 - Chemical analysis (heat analysis) (1)

Steel grade (2)		Heat analysis										
Steel name	Steel number	C % max	Si % max	Mn %	P % max	S % max	Cr % (3) max	Ni % (3) max	Mo % max	Cu % (3) max	Al % (4) max	N % max
C2D1	1.1185	0,03	0,05	0,20-0,35	0,020	0,020	0,10	0,10	0,03	0,10	0,01	0,007
C3D1	1.1187	0,05	0,05	0,20-0,40	0,025	0,025	0,10	0,10	0,03	0,15	0,05	-
C4D1	1.1188	0,06	0,10	0,20-0,45	0,025	0,025	0,15	0,15	0,03	0,15	0,05	-

(1) Elements not included in this table may not be added intentionally to the steel without the agreement of the purchaser, except those intended for finishing the cast.

(2) Special non alloy steel according to EN 10020.

(3) The sum of the contents Cu+Ni+Cr shall not exceed :

- for steel grade C2D1, 0,25%;
- for steel grade C3D1, 0,30%;
- for steel grade C4D1, 0,35%.

(4) For steels grade C3D1 and C4D1 a lower maximum limit may be specified at the time of ordering.

Table 2 - Permissible deviations in the product analysis in relation to the actual heat analysis

Element	Steel grade	Permissible deviation in product analysis %
C	C2D1	+ 0,01
	C3D1 - C4D1	+ 0,02
Si	C2D1 - C3D1	+ 0,02
	C4D1	+ 0,04
Mn	All grades	± 0,05
P and S	All grades	+ 0,005

3.2 Internal soundness and surface quality

The rod shall have no internal and/or surface imperfections such as : shrink holes, segregation, cracks, folds, incrustations, notches, scabs, rolling burrs, damage, which may be prejudicial to its correct use.

3.3 Depth of surface defects

The rod shall not have any surface discontinuities of depth greater than the values shown in table 3.

These limit values apply for the test chosen according to EN 10016 part 1 (clauses 9.5.1 and 9.6.2).

Table 3 - Limit values for the depth of surface discontinuities

Class according to EN 10221	Nominal diameter d_N mm	Maximum permissible depth 1) of surface discontinuities mm
C	$5 \leq d_N \leq 12$	0,17
	$12 < d_N \leq 30$	0,23
1) The depth of surface discontinuities is measured from the actual surface of the product in a radial direction.		

3.4 Inspection of non-metallic inclusions

The method for inspecting non-metallic inclusions and the assessment criteria for it shall be agreed at the time of ordering, as far as possible with reference to the ENV 10247 or to one of the following standards:

- DIN 50 602/1985 Metallographische Prüfverfahren -Mikroskopische Prüfung von Edelmetallen auf nichtmetallische Einschlüsse mit Bildreihen;
- NF A 04-107/1980 Produits sidérurgiques - Méthode micrographique de détermination de la teneur en inclusions non-métalliques du fil-machine en acier non allié:
- UNI 3244/1980 (with annex) Esame microscopico dei materiali ferrosi - Valutazione delle inclusions non metalliche negli acciai mediante immagini tipo;
- ASTM E 45/1987 Standard practice for determining the inclusion content of steel.