



SLOVENSKI STANDARD
SIST EN 10270-1:2012/kFprA1:2017
01-februar-2017

Jeklena žica za vzmeti - 1. del: Patentirana hladno vlečena nelegirana jeklena žica za vzmeti

Steel wire for mechanical springs - Part 1: Patented cold drawn unalloyed spring steel wire

Stahldraht für Federn - Teil 1: Patentiert gezogener unlegierter Federstahldraht

Fils en acier pour ressorts mécaniques - Partie 1 : Fils pour ressorts en acier non allié, patentés, tréfilés à froid

Ta slovenski standard je istoveten z: EN 10270-1:2011/FprA1

ICS:

77.140.25	Vzmetna jekla	Spring steels
77.140.65	Jeklene žice, jeklene vrvi in verige	Steel wire, wire ropes and link chains

SIST EN 10270-1:2012/kFprA1:2017 en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

FINAL DRAFT
EN 10270-1:2011
FprA1

December 2016

ICS 77.140.25

English Version

Steel wire for mechanical springs - Part 1: Patented cold drawn unalloyed spring steel wire

Fils en acier pour ressorts mécaniques - Partie 1 : Fils
pour ressorts en acier non allié, patentés, tréfilés à
froid

Stahldraht für Federn - Teil 1: Patentiert gezogener
unlegierter Federstahldraht

This draft amendment is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee ECISS/TC 106.

This draft amendment A1, if approved, will modify the European Standard EN 10270-1:2011. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (EN 10270-1:2011/FprA1:2016) has been prepared by Technical Committee ECISS/TC 106 “Wire rod and wires”, the secretariat of which is held by AFNOR.

This document is currently submitted to the Unique Acceptance Procedure.

EN 10270-1:2011/FprA1:2016 (E)**1 Modifications to Clause 2, Normative references**

Replace the whole reference to CEN/TR 10261 with:

"CEN/TR 10261, *Iron and steel — European standards for the determination of chemical composition*".

At the end of the title of EN ISO 377, replace "(ISO 377:1997)" with "(ISO 377:2013, Corrected version 2015-06-01)".

2 Modification to Clause 3, Terms and definitions

In the first sentence, replace "terms and definitions" with "term and definition".

3 Modification to Clause 4, Classification

At the end of the first paragraph, replace "Low" with "low".

4 Modification to Clause 5, Information to be supplied by the purchaser

At the end of List Item h), add "(see 7.1)".

5 Modification to 6.1.1, General

Replace the whole content of this subclause with:

"Steel spring wire shall be made from steel grades according to:

- for SL, SM and SH EN ISO 16120-2
- for DM and DH EN ISO 16120-4

For general requirements EN ISO 16120-1 apply."

6 Modifications to 6.1.2, Chemical composition

Replace Table 2 with the following table (in which "max" moves from the table header to each row for P, S and Cu; footnote ^b is deleted and footnote ^c becomes footnote ^b):

"

Table 1 — Chemical composition, % by mass

Grade	C ^a	Si	Mn ^b	P	S	Cu
SL, SM, SH	0,35 to 1,00	0,10 to 0,30	0,40 to 1,20	0,035 max.	0,035 max.	0,20 max.
DM, DH	0,45 to 1,00	0,10 to 0,30	0,40 to 1,20	0,020 max.	0,025 max.	0,12 max.

^a Such a wide range is stipulated to accommodate the whole range of sizes. For individual sizes the carbon range is substantially more restricted.

^b For the manganese content, a different range from the one indicated in the table may be agreed at the time of ordering, with a maximum not exceeding 1,20 % and with a minimum range of 0,20 %.

".

7 Modification to 6.4, Mechanical properties

In the first paragraph, replace the second sentence with "Reduction of area shall be measured only for wire diameter $0,80 \text{ mm} < d$ ".

8 Modifications to 6.4, Mechanical properties

In Table 3, proceed to the following modifications:

- *line corresponding to mass = 2,22 kg/1 000 m, nominal size (mm) range to be changed in " $0,56 < d \leq 0,60$ " (column 1);*
- *line corresponding to mass = 347 kg/1 000 m, reference to foot note g to be added in column 9 so as to read "7g" (column 9);*
- *line corresponding to mass = 445 kg/1 000 m, nominal size range (mm) to be changed in " $8,00 < d \leq 8,50$ " (column 1);*
- *line corresponding to mass = 499 kg/1 000 m, nominal size range (mm) to be changed in " $8,50 < d \leq 9,00$ " (column 1);*
- *line corresponding to mass = 559 kg/1 000 m, permissible deviation (mm) to be centred between 2 lines (column 2);*
- *line corresponding to mass = 680 kg/1 000 m, permissible deviation (mm) to be centred between 2 lines (column 2);*
- *line corresponding to mass = 1 387 kg/1 000 m, both SM and DM ranges (MPa) to be modified in "1 110 to 1 260" (columns 4 and 5);*
- *line corresponding to mass = 2 225 kg/1 000 m, permissible deviation (mm) to be centred between 2 lines (column 2);*
- *footnote "a" to be modified as follows:*

"

^a Wire with diameter $20 \text{ mm} < d$ diameter is used. Where such wire is specified the parties shall agree upon the properties and requirements at the time of enquiry and order.^b

";

- *footnote e to be modified as follows:*

"

^e For diameters $0,05 \text{ mm} \leq d \leq 0,18 \text{ mm}$, a restricted tensile strength range of 300 MPa within the specified range may be agreed."

".

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In Table 4, replace the first column with the following one:

"

Nominal diameter d mm
$d \leq 0,80$
$0,80 < d \leq 1,60$
$1,60 < d$

".

9 Modification to 6.5.1, Coiling test

At the end of first paragraph, replace "a diameter up to 0,70 mm for the grades DM, SH and DH" with "a diameter $d \leq 0,70$ mm for the grades DM, SH and DH".

10 Modifications to 6.5.2, Simple torsion test

At the end of the first sentence, replace "in the nominal diameter range over 0,70 mm to 10 mm" with "in the nominal diameter range $0,70 \text{ mm} < d \leq 10 \text{ mm}$ ".

At the end of the second sentence, replace "for diameters up to 7,00 mm is mandatory" with "for diameters $d \leq 7,00$ mm is mandatory".

11 Modification to 6.5.3, Wrapping test

At the end of the first sentence, replace "with a diameter equal or less than 3,00 mm" with "with a diameter $d \leq 3,00$ mm".

12 Modification to 6.5.4, Simple bend test

At the end of the first sentence, replace "with a diameter greater than 3,00 mm" with "with a diameter $3,00 \text{ mm} < d$ ".

13 Modifications to 6.6.2, Coil size

In Table 5, replace the first column with the following one:

"

Nominal diameter ^a d mm
$0,25 < d \leq 0,28$
$0,28 < d \leq 0,50$
$0,50 < d \leq 0,70$
$0,70 < d \leq 1,60$
$1,60 < d \leq 4,50$
$4,50 < d$

".

In Table 5, replace Footnote ^a with the following one:

"

- ^a For wire diameter $d \leq 0,25$ mm specific agreements shall be made between the parties at time of enquiry or order."

14 Modification to 6.6.4, Helix cast of wire

In the first paragraph, replace the second sentence with "The requirement shall be considered fulfilled in the case of wire diameter $d \leq 5,00$ mm in diameter if the following condition is satisfied:".

15 Modifications to 6.8.1, Dimensional tolerances

In List Entry a), replace:

"The tolerances on the diameter are specified in Table 3.

This is based on EN 10218-2."

- 1) T5 for diameters below 0,80 mm;
- 2) T4 for diameters from 0,80 mm up to 10,00 mm;
- 3) T3 for diameters over 10,00 mm.

Where the required tolerance level is different from that mentioned in Table 3, it shall be specified at the time of order."

with:

"The tolerances on diameter shall fulfil the requirements specified in Table 3 and are in accordance with EN 10218-2.

- 1) T5 for diameters $d \leq 0,80$ mm;
- 2) T4 for diameters $0,80 \text{ mm} < d \leq 10,00$ mm;
- 3) T3 for diameters $10,00 \text{ mm} < d$."

Where the required tolerance level is different from that mentioned in Table 3, it shall be agreed at the time of order."

16 Modification to 7.4.2, Tensile test

In the first sentence, replace "The tensile test shall be carried out according to EN ISO 6892-1" with "The tensile test at room temperature shall be carried out according to EN ISO 6892-1".

17 Modifications to 7.4.6, Simple bend test

Replace the first sentence with "For the bend test, a wire sample of sufficient length shall be bent in U form around a mandrel with a diameter equal to twice the wire diameter $3,00 \text{ mm} < d \leq 6,50$ mm and equal to three times the wire diameter $6,50 \text{ mm} < d$."

18 Modification to 7.4.7, Surface defects

In the first paragraph, replace the second sentence with "It may be agreed for wire diameter $d \leq 2,00$ mm at the time of order, that microscopic testing be carried out immediately after the last heat treatment."