

Cylindrical helical springs made from round wire and bar - Calculation and design - Part 1: Compression springs

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 13906-1:2002 sisaldab Euroopa standardi EN 13906-1:2002 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.09.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 13906-1:2002 consists of the English text of the European standard EN 13906-1:2002.</p> <p>This document is endorsed on 18.09.2002 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>This standard specifies the calculation and design of cylindrical helical compression springs with a linear characteristic, made from round wire and bar of constant diameter with values according to Table 1, and in respect of which the principal loading is applied in the direction of the spring axis.</p>	<p>Scope:</p> <p>This standard specifies the calculation and design of cylindrical helical compression springs with a linear characteristic, made from round wire and bar of constant diameter with values according to Table 1, and in respect of which the principal loading is applied in the direction of the spring axis.</p>
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ICS 21.160

Võtmesõnad: circular form, design, dimensions, dynamic loading, helical springs, hot- working, hot-worked, initial stressing, mathematical calculations, metal bars, ratings, springs, static loading, steels, stress, stress coefficient, stresses, wires

ICS 21.160

English version

Cylindrical helical springs made from round wire and bar -
Calculation and design - Part 1: Compression springs

Ressorts hélicoïdaux cylindriques fabriqués à partir de fils
ronds et de barres - Calcul et conception - Partie 1:
Ressorts de compression

Zylindrische Schraubenfedern aus runden Drähten und
Stäben - Berechnung und Konstruktion - Teil 1:
Druckfedern

This European Standard was approved by CEN on 5 January 2001.

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Foreword

This document (EN 13906-1:2002) has been prepared by CEN/CS SUBSECTOR M18, the secretariat of which is held by CMC.

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 October 2002, and conflicting national standards shall be withdrawn at the latest by October 2002.

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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This European Standard has been prepared by the initiative of the Association of the European Spring Federation ESF and is based on the German Standard DIN 2089- 1 - «Helical compression springs out of round wire and rod; calculation and design» edition 1984-12, which is known and used in many European countries.

1 Scope

This standard specifies the calculation and design of cylindrical helical compression springs with a linear characteristic, made from round wire and bar of constant diameter with values according to Table 1, and in respect of which the principal loading is applied in the direction of the spring axis.

Table 1

Characteristic	Cold coiled compression spring	Hot coiled compression spring ¹⁾	Hot coiled compression spring ²⁾
Wire or bar diameter	$d \leq 17 \text{ mm}$	$8 \text{ mm} \leq d \leq 60 \text{ mm}$	$9 \text{ mm} \leq d \leq 18 \text{ mm}$
Coil diameter	$D \leq 200 \text{ mm}$	$D \leq 460 \text{ mm}$	$D \leq 180 \text{ mm}$
Length of unloaded spring	$L_0 \leq 630 \text{ mm}$	$L_0 \leq 800 \text{ mm}$	$L_0 \leq 600 \text{ mm}$
Number of active coils	$n \geq 2$	$n \geq 3$	$5 \leq n \leq 12$
Spring index	$4 \leq w \leq 20$	$3 \leq w \leq 12$	$6 \leq w \leq 12$
1) Batch size ≤ 5000 parts 2) Batch size > 5000 parts			

NOTE Quality Standards for compression springs will be developed later.

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 (including amendments).

EN 10270-1:2001, *Steel wire for mechanical springs - Part 1: Patented cold drawn unalloyed steel spring wire.*

EN 10270-2:2001, *Steel wire for mechanical springs - Part 2: Oil hardened and tempered spring steel wire.*

EN 10270-3:2001, *Steel wire for mechanical springs - Part 3: Stainless spring steel wire.*

EN 12166, *Copper and copper alloys - Wire for general purposes.*

EN ISO 2162-1:1996, *Technical product documentation - Springs - Part 1: Simplified representation (ISO 2162-1:1993).*

EN ISO 2162-3:1996, *Technical product documentation - Springs - Part 3: Vocabulary (ISO 2162-3:1993).*

prEN 10089:2000, *Hot-rolled steels for quenched and tempered springs – Technical delivery conditions.*