

BS EN 13906-2:2013



BSI Standards Publication

Cylindrical helical springs made from round wire and bar — Calculation and design

Part 2: Extension springs

bsi.

...making excellence a habit.™

This is a preview. [Click here to purchase the full publication.](#)

National foreword

This British Standard is the UK implementation of EN 13906-2:2013. It supersedes BS EN 13906-2:2001 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee FME/9/3, Springs.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2013. Published by BSI Standards Limited 2013

ISBN 978 0 580 80599 8

ICS 21.160

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2013.

Amendments issued since publication

Date	Text affected
------	---------------

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13906-2

June 2013

ICS 21.160

Supersedes EN 13906-2:2001

English Version

**Cylindrical helical springs made from round wire and bar -
Calculation and design - Part 2: Extension springs**

Ressorts hélicoïdaux cylindriques fabriqués à partir de fils
ronds et de barres - Calcul et conception - Partie 2:
Ressorts de traction

Zylindrische Schraubenfedern aus runden Drähten und
Stäben - Berechnung und Konstruktion - Teil 2: Zugfedern

This European Standard was approved by CEN on 16 May 2013.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions, symbols, units and abbreviated terms	4
3.1 Terms and definitions	4
3.2 Symbols, units and abbreviated terms.....	5
4 Theoretical extension spring diagram.....	6
5 Types of loading	7
5.1 General.....	7
5.2 Static and/or quasi-static loading	7
5.3 Dynamic loading	7
6 Stress correction factor k	8
7 Initial tension force F_0	9
8 Material property values for the calculation of springs.....	10
9 Calculation formulae	10
9.1 General.....	10
9.2 Spring work	10
9.3 Spring Force.....	11
9.4 Spring deflection.....	11
9.5 Spring rate	11
9.6 Torsional stresses	11
9.7 Nominal diameter of wire or bar.....	11
9.8 Number of active coils	11
9.9 Total number of coils	11
9.10 Initial tension force.....	12
10 Permissible torsional stress under static or quasi-static loading.....	12
10.1 General.....	12
10.2 Permissible torsional stress τ_{zul} for cold coiled springs	12
10.3 Permissible torsional stress τ_{zul} for hot coiled springs	12
10.4 Initial tension torsional stress τ_0	12
11 Calculation of extension springs for dynamic loading.....	13
Annex A (informative) Types of spring ends.....	14
Bibliography	18