

FED16

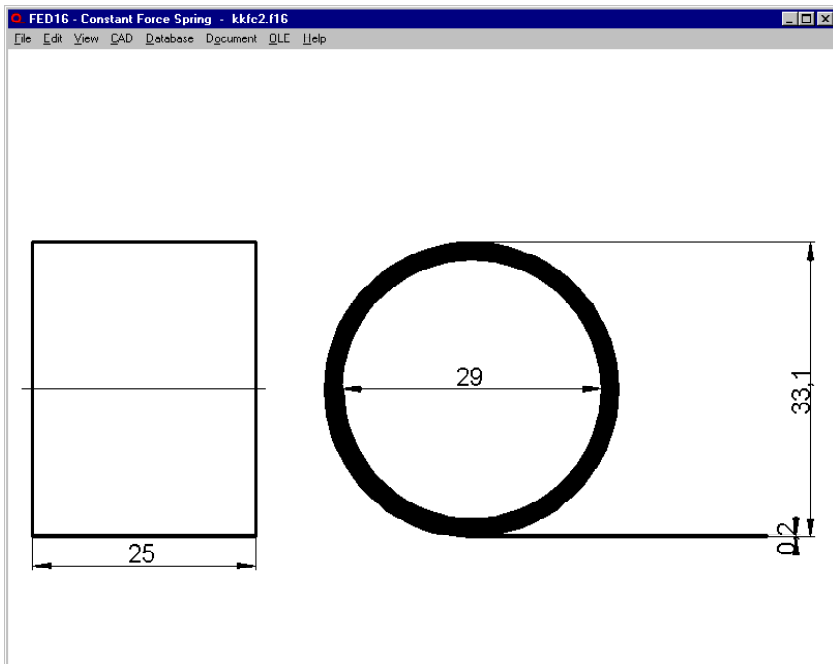


www.hexagon.de

Software for

Constant Force Springs

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FED16 - Calculation of Constant Force Springs

FED16 calculates constant force springs made of rolled strip steel. FED16 provides two calculation methods: pre-dimensioning and recalculation.

Recalculation

FED16 calculates spring force, spring travel, bending stress and life cycles. Input data are material thickness, material width, inner coil (drum) diameter, outer coil diameter and natural coil diameter as base diameter for calculation of force and stress.

Pre-Dimensioning

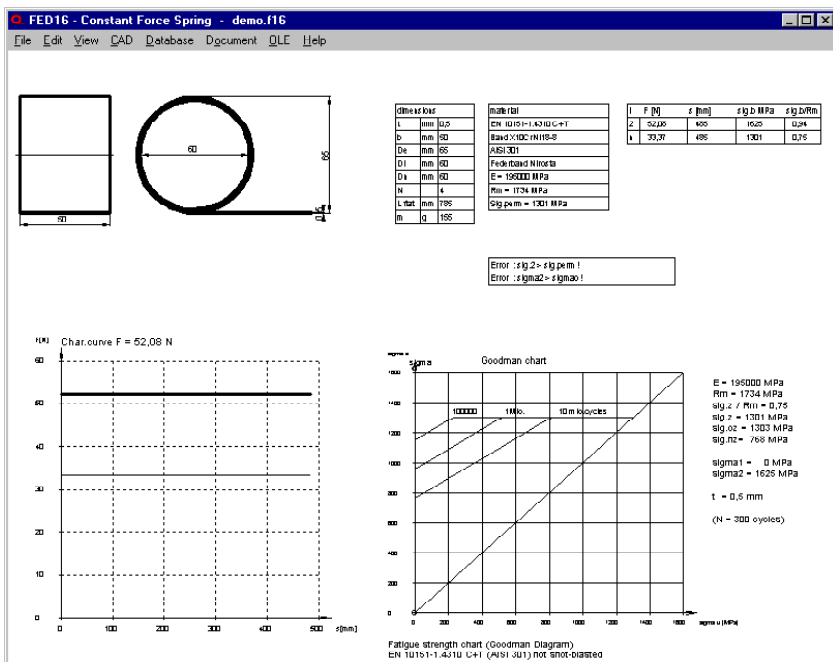
In pre-dimensioning just enter required force and length (spring travel) and FED16 calculates dimensions of the required constant force spring. You can modify ratio of material width to material thickness as well as permissible stress to calculated stress to influence dimensions and life expectation.

Units

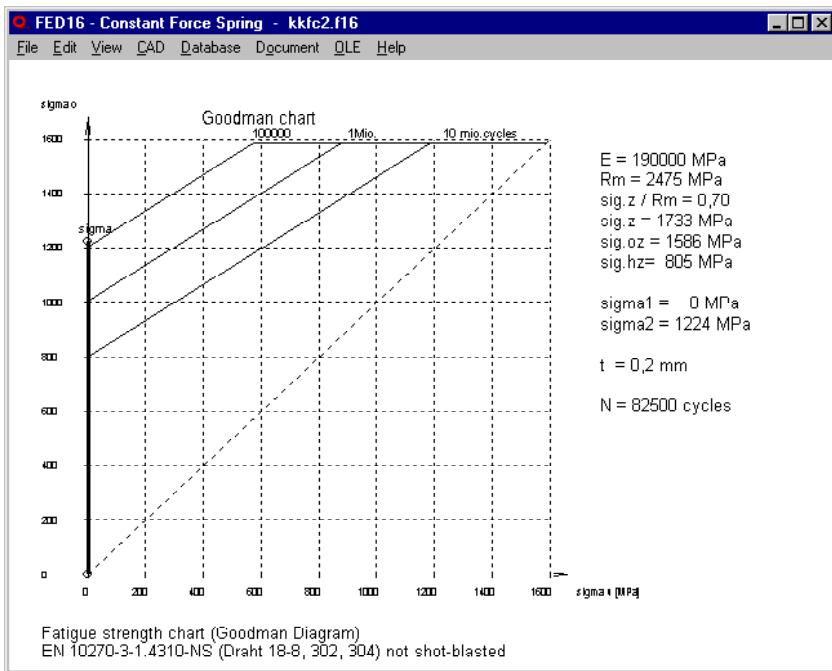
FED16 can be switched between metric units (mm, N, MPa) and imperial units (inch, lbf, psi)

Material Database

Material properties of the most important flat spring materials (tensile strength, permissible shear stress and bending stress as function of material thickness, modulus of elasticity, density) are stored at the integrated material database. The dbf file may be extended and modified by the user.



NAME1	NAME2	NAME3	NAME4	E
EN 10132-4 C855 +QT	coldrolled steel strip	1.1269		206000
EN 10132-4 C305 +QT	coldrolled steel strip	1.1217		206000
EN 10151-1.4310 C+T	X10CrNi18-8	AISI 301	stainless steel	195000
EN 10151-1.4401 C+T	X2CrNiMo17-12-2	AISI 316	stainless steel	190000
EN 10151-1.4568 C+T	X2CrNiAl17-7	17-7 PH	stainless steel	200000
EN 1654 CuBe2 R1310	Cw101C-R1310	2.1247.97		135000
EN 1654 CuCo2Be R820	Cw104C-R820	2.1285.97		140000
EN 1654 CuSn6 R720	Cw452K-R720	2.1020.39		115000
EN 1654 CuZn36 R630	Cw507L-R630	2.0335.39		110000
Hastelloy C-4	NiCr16Mo16FeCo	2.4610	ASTM B619	212000
INCONEL X-750 ST+3HT	NiCr15Fe7TiAl	2.4669	Sanicro 75X1	212000
INCONEL X-750 ST+age	NiCr15Fe7TiAl	2.4669	Sanicro 75X1	214000
INCONEL X-750 T. No. 1	NiCr15Fe7TiAl	2.4669	Sanicro 75X1	220000
Mk. 75	Mk. 75 pretempered	PT 140		206000
Monel 400	NiCu31FeMn	2.4360	ASTM B164	173000
NIMONIC 90 annealed	NiCo20Cr18Ti	2.4969/2.4632	annealed, final red.	218000
NIMONIC 90 final red	NiCo20Cr18Ti	2.4969/2.4632	final red.	235000
Ti-3Al-6V-4.4, ST+age	AMS 4957 Beta-C	11.340/VS2-4Mo4Zr	solution treat+aged	90000
Titanium Grade 1	Ti69	3.7025	ASTM B348	110000



Diagrams

FED16 calculates force and spring travel (load-extension diagram).

Goodman-Diagram

If dynamically loaded, Goodman diagram is useful to calculate fatigue strength safety and bearable load cycles of the spring.

Quick View

Quick View includes tables with dimensions and calculation results and Goodman diagram altogether on one screen.

Printout

Input data and calculation results may be printed, saved as text or HTML file, or exported to MS Excel via OLE interface.

Production Drawing

FED16 generates a production drawing of the constant force spring with ISO 7200 title block. Drawing name, date, users and modifications are described in FED16.

HEXAGON Help System

Auxiliary text and images are available for all dialogue windows. If error messages appear, you can get description and remedy suggestion.

Interfaces

Drawings and diagrams can be saved as DXF or IGES file to be loaded with CAD programs. The OLE interface lets you import/export data from/to Excel.

Export Formats

DXF, IGES, STL, HTML, TXT, DBF, Excel, F16.

Import Formats

TXT, DBF, Excel, F16.

System Requirements

FED16 is available as 32-bit app or as 64-bit app for Windows 10, Windows 8, Windows 7.

Scope of Delivery

Program with user manual (pdf), database files, example applications and help images, non-expiring license for unlimited time use with update rights.

Software Maintenance

HEXAGON Software is continuously improved and updated. Registered users are regularly kept informed of updates and new editions.

Guarantee

HEXAGON gives a 24 month guarantee on full functionality of the software. We provide help and support by email and hotline without extra charge.

