

# FED10

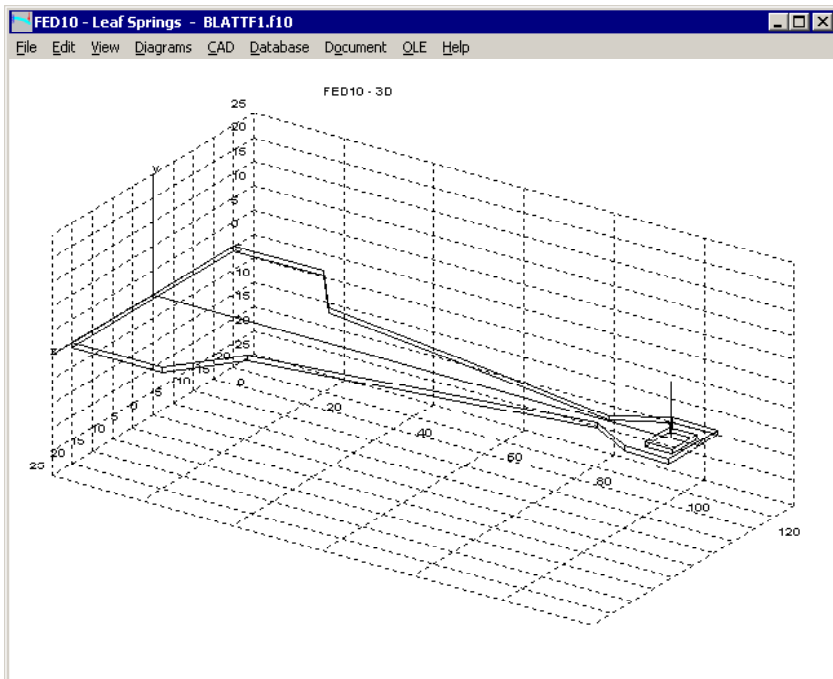


www.hexagon.de

## Software for Calculation of Leaf Springs

for Windows

© Copyright 2001-2015 by HEXAGON Software, Berlin, Neidlingen, Kirchheim



### Leaf Spring Calculation

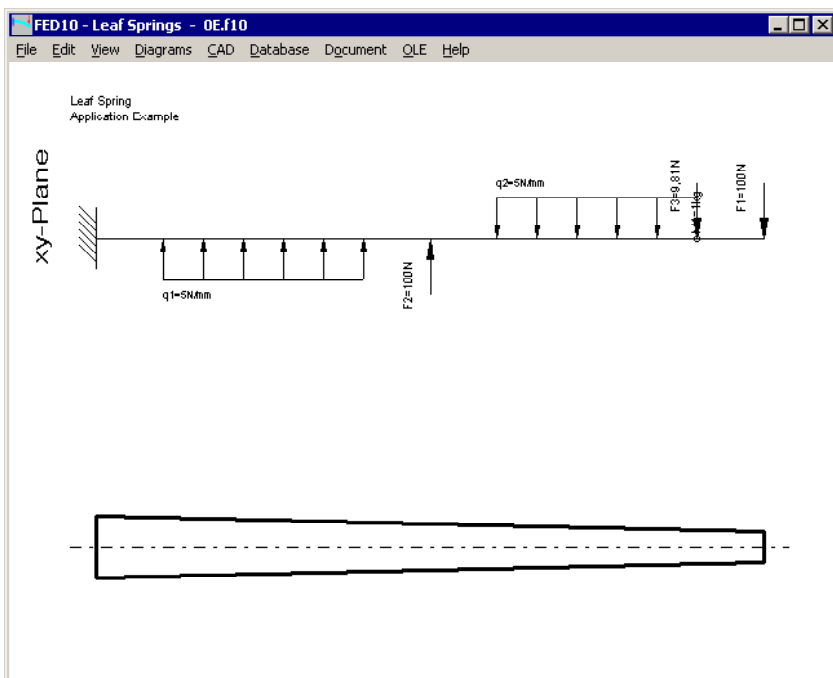
FED10 calculates stress, deflection and resonance frequency of flat leaf springs, or of flexural bending springs of round wire.

### Spring geometry and load

Leaf spring geometry is defined by external and internal coordinates of leaf spring sections. FED10 calculates leaf springs defined by up to 100 sections. Load is defined by up to 50 radial and axial forces, path load, bending moments.

### Bedding

FED10 calculates leaf springs with fixed clamping, or 2, 3, 4 or 5 support positions. By input of spring rate, you may even consider bearing stiffness for calculation.



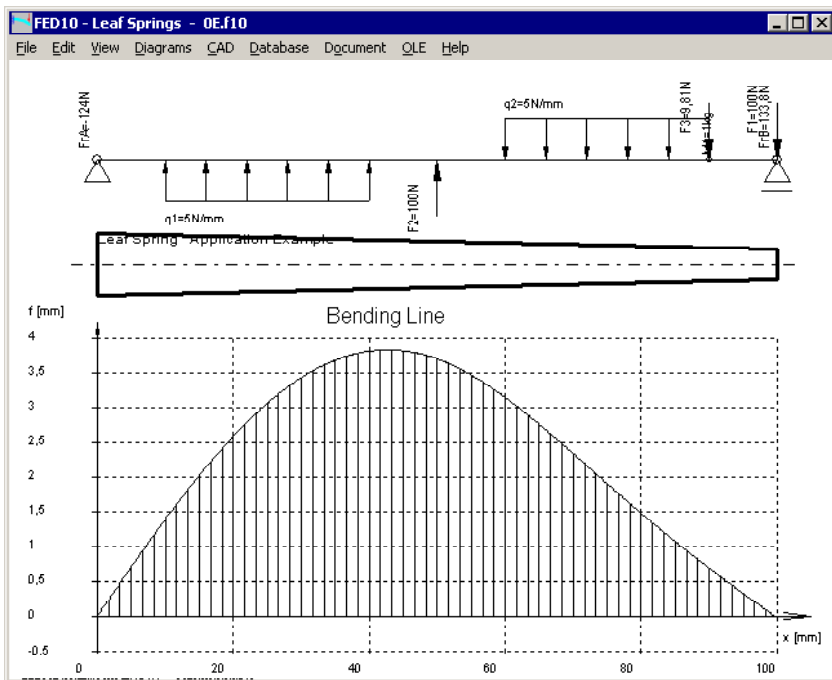
### Material Database

The integrated material database includes mostly used flat steel spring materials. Database may be modified and extended by the user.

NAME1	NAME2	NAME3	NAME4	E
Ck 95 Brockhaus	Sorbtex 90	Bainlex 90		206000
Ck 95 H+A	Ck 95 heat-treated martens.			206000
EN 10089 38S17	hot-rolled spring steel	1.5023		206000
EN 10089 51CrV4	hot-rolled spring steel	1.8159		206000
EN 10089 52CrMoV4	hot-rolled spring steel	1.7701		206000
EN 10089 55Cr2	hot-rolled spring steel	1.7176		206000
EN 10089 55SiCr6	hot-rolled spring steel	1.7102		206000
EN 10089 60SiCrV7	hot-rolled spring steel			206000
EN 10089 61SiCr7	hot-rolled spring steel	1.7108		206000
EN 10132-4 102Cr6+QT	cold-rolled steel strip	1.2067		206000
EN 10132-4 125Cr2+QT	cold-rolled steel strip	1.2002		206000
EN 10132-4 48Si7+QT	cold-rolled steel strip	1.5021		206000
EN 10132-4 51CrV4+QT	cold-rolled steel strip	1.8159		206000

### Resonance frequency

Resonance frequency of the spring-mass system can be calculated from leaf spring weight and external masses.



## Diagrams

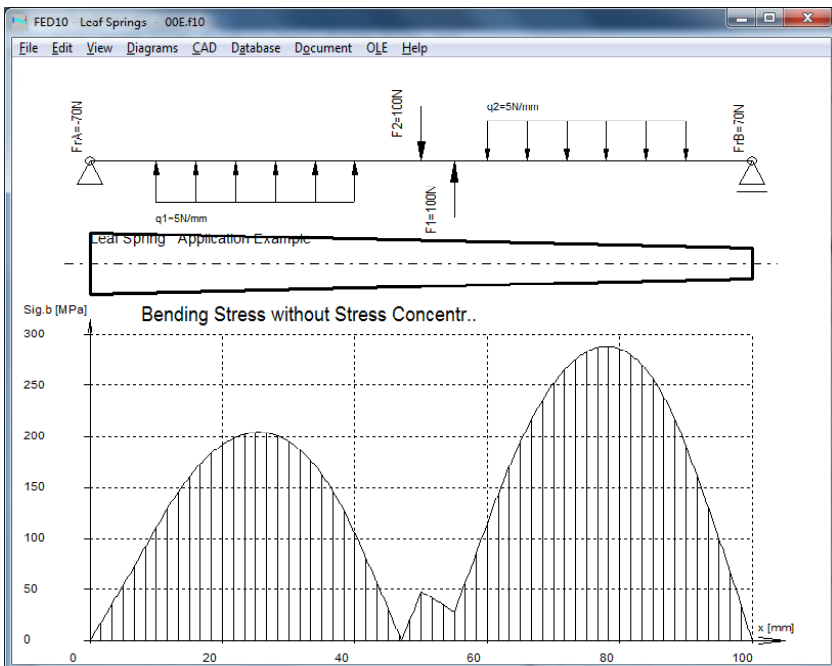
FED10 displays diagrams of radial force, bending moment, bending angle, deflection, bending stress, tension and reference stress. Diagrams can be printed, or exported to CAD or other software via DXF or clipboard.

## Calculation Options

You can activate calculation of dead weight and/or external masses as path load. Safety against buckling can be calculated for axial load. Bearing stiffness can be considered for ball-and-socket bedding.

## Printout

Calculation results with maximum values of deflection, stresses, radial load, bending moment, safety, spring weight, spring rate, center of gravity, bearing load and bending angle on support positions, resonance frequency, material properties and input data can be printed or exported as HTML table or Excel file.



## 2D drawing

FED10 generates a true-scale drawing of the leaf spring as DXF or IGES file

## 3D drawing

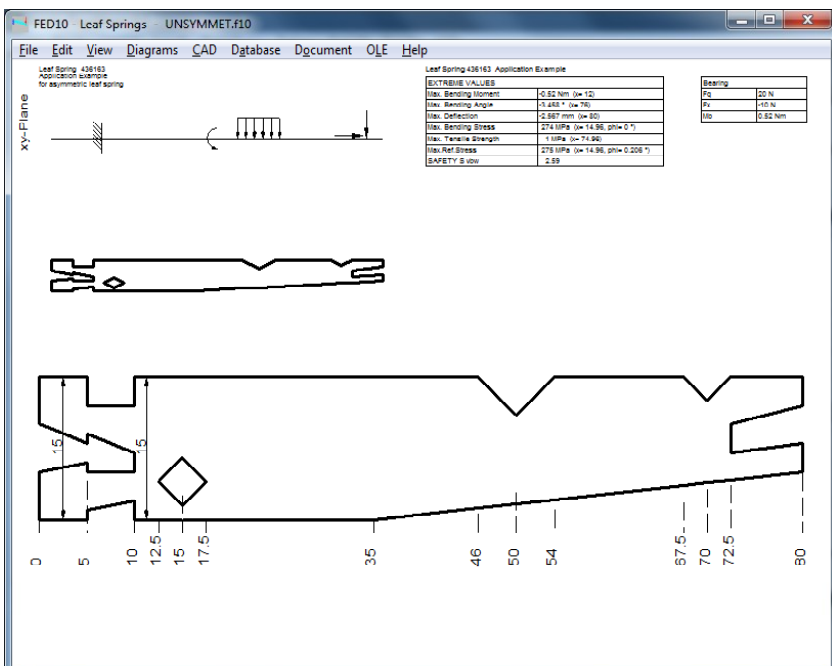
A 3D drawing of the leaf spring can be exported to CAD, or foreshortened on screen.

## Production drawing

FED10 generates a production drawing of the leaf spring with all dimensions. Drawing information and modification index can be entered within the program.

## Help System

You can display a help window for each input value. FED10 displays warnings when values are exceeded. For each error message you can display a more detailed description of the error and a remedy suggestion.



## Hardware and Software requirements

FED10 is available as 32-bit app or as 64-bit app for Windows XP / Windows Vista / Windows 7 / Windows 8 / Windows 10.

## Scope of Delivery

FED10 program (incl. sample data, auxiliary pictures, help texts), user manual (pdf), license for unlimited time use.

## Software Maintenance

FED14 is constantly being improved and updated. Registered users will be informed about news, and can get new versions at a reasonable update price.

## Guarantee

HEXAGON gives a 24 month guarantee on full functionality of the software.