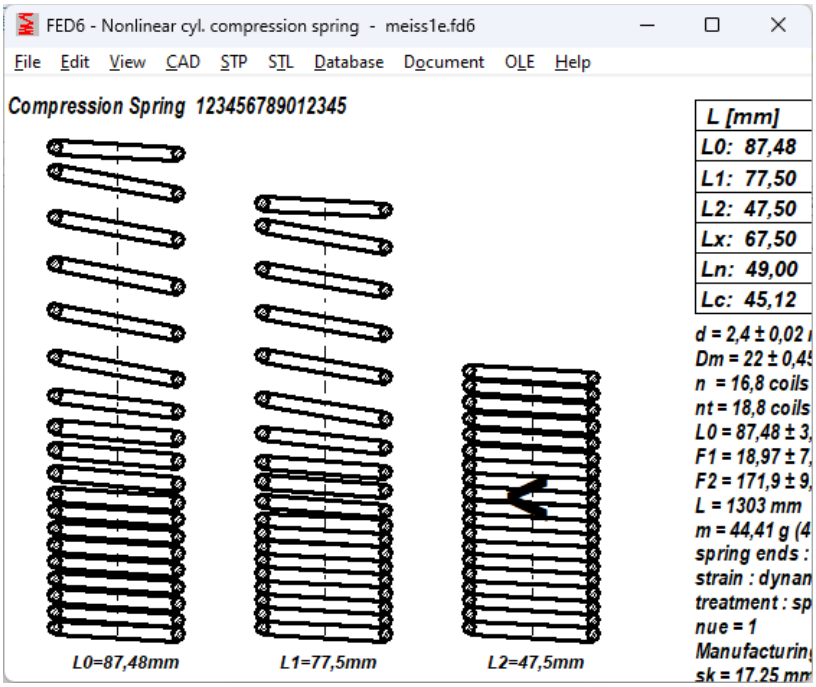
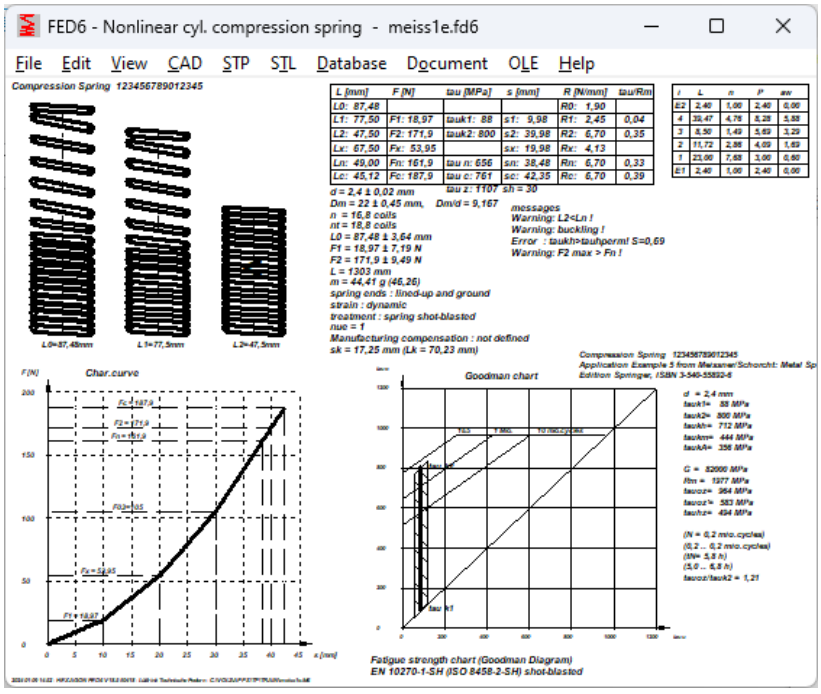
FED6

Software for Calculation of Nonlinear Helical Cylindrical Compression Springs

for Windows





Nonlinear Spring Calculation

A progressive characteristic line is obtained when cylindrical compression springs with differing coil distances are coiled. The FED6 software was specially developed to calculate this type of spring. FED6 calculates all spring deflections and loads. The characteristic curves and spring drawings can be graphically presented, and exported via DXF or IGES files to CAD and word processing programs.

Calculation

The sections of the spring, and with that the degree of progression, are determined by input of length and number of coils of the spring sections. A maximum of 50 sections can be defined. FED6 calculates spring loads, deflection, spring rates, spring energy, shear stress, wire length and weight, after input of wire diameter and coil diameter.
In Dimensioning, you can input the load/deflection positions of the progressive spring curve, and FED6 calculates the required spring sections.

Material Database

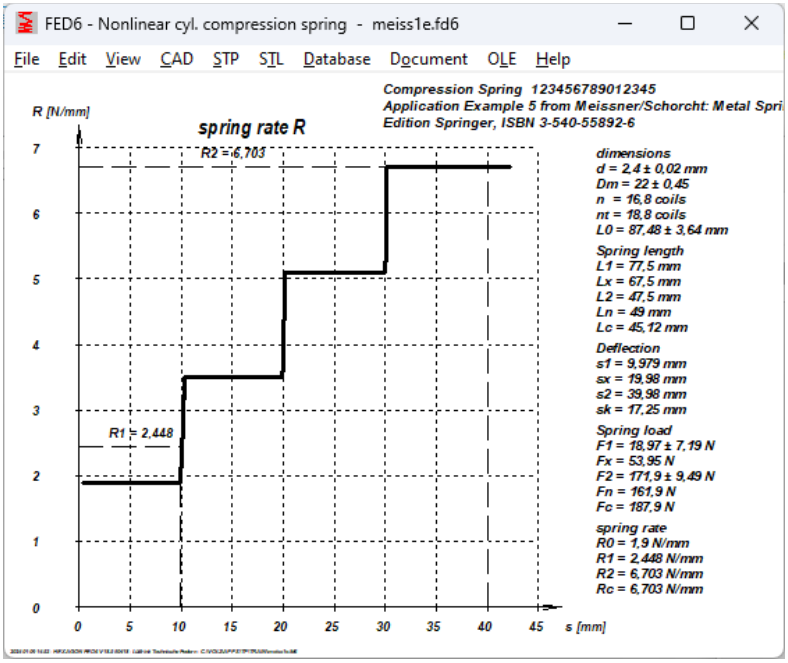
The FED6 software obtains the values for the most important spring materials from the integrated material database (tensile strength, admissable shearing stress depending on wire diameter, shearing modulus, modulus of elasticity,density).

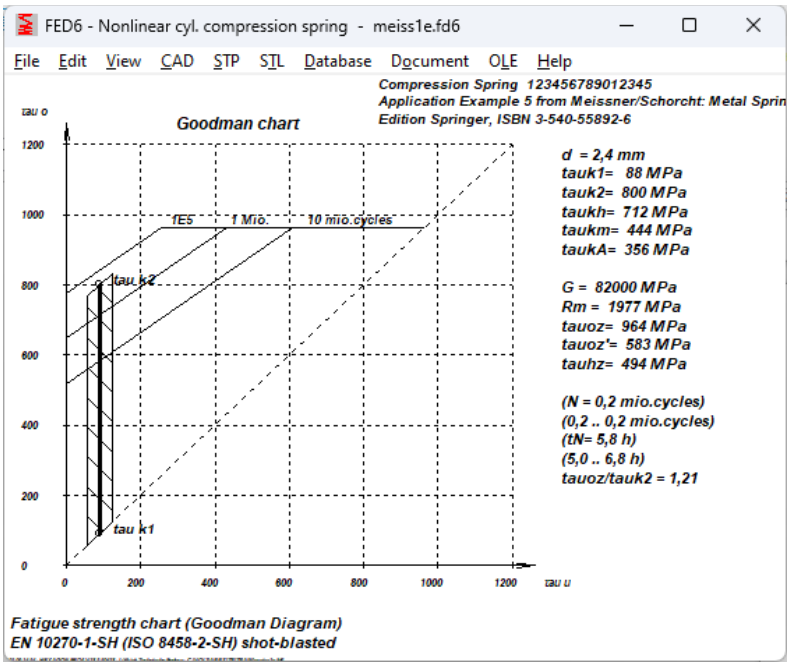
Tolerances

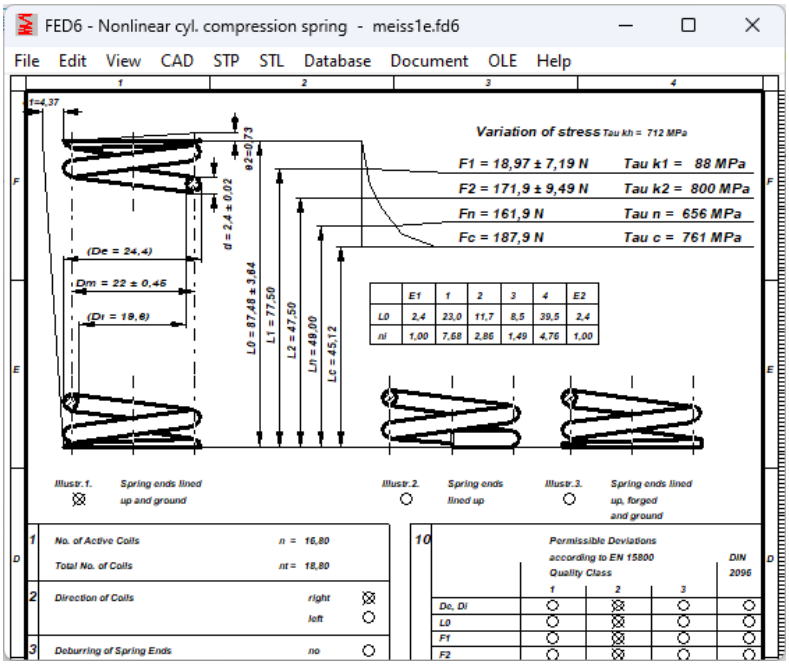
FED6 calculates the tolerances for the wire diameter d according to EN 10218, EN 10270 and DIN 2077, and for Dm, L0, F1, F2 according to EN 15800 and DIN 2096.

Spring Drawing and Animation

Cross-section drawings of the spring in any clamping length can be graphically presented and exported to CAD via DXF or IGES files. Animation allows you to slew the spring on the screen between two specified positions.







Diagrams
FED6 allows you to display the load-deflection curve, spring rate, spring energy, natural frequency, stresses, relaxation and buckling as diagram on screen.

Spring Characteristic Curve and Spring Rate
The characteristic curve (load-deflection diagram) of a non-linear compression spring becomes progressive at the point where the first coils begin to touch. The spring rate and spring load curves are graphically represented as a function dependent on the deflection.

Natural Frequency
Natural frequency of nonlinear compression spring is inconstant, it changes with the spring rate.

Spring Energy
The spring energy arises as the integral from the spring characteristic line.

Goodman Diagram
You can see in the fatigue strength diagram whether or not the permissible variation of stress has been adhered to for dynamically stressed springs. The curves for fatigue strength (>10 million) as well as for 1 million and 100,000 load cycles are shown.

Quick View
The Quick View displays drawings, diagrams and tables altogether on one screen.

Production Drawing
FED6 generates a complete production drawing which can be printed directly, or exported to CAD using DXF or IGES interface. An international production drawing is available in English, German, French, Italian, Spanish, Portuguese, Swedish and Dutch language.

3D Drawing
FED6 generates a 3-dimensional curve of the centerline of the spring coils, which can be exported to CAD in xyz coordinates, or displayed on screen in a configurable xyz coordinate system.

Export Formats
DXF, IGES, HTML, TXT, DBF, Excel, FD6.

System Requirements
FED6 is available as 32-bit app or as 64-bit app for Windows 11 / Windows 10 / Windows 7.

Scope of Delivery
FED6 program with example applications and help images, user manual (pdf), perpetual license for unlimited time use.

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