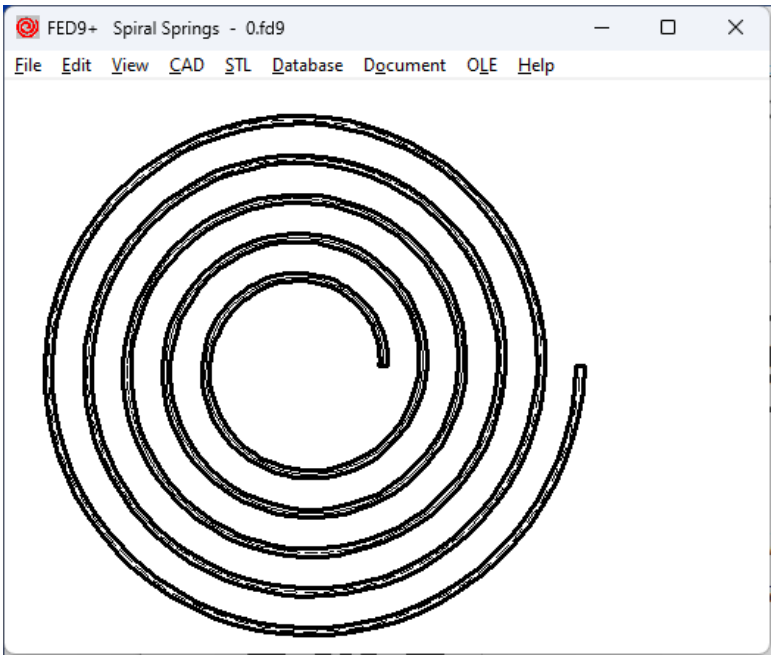
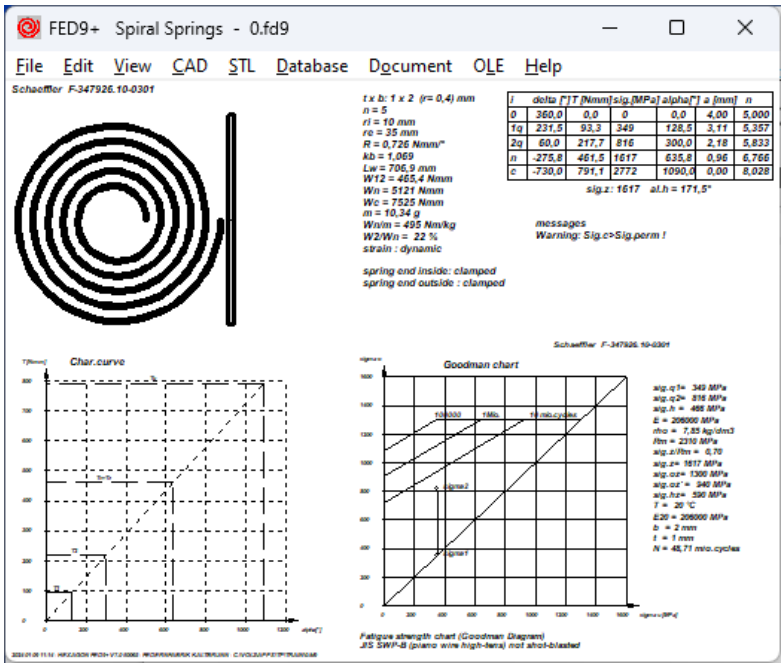
F E D 9 +

Software for Calculation of Spiral Springs

for Windows





Calculation
FED9+ calculates torque and bending stress of spiral springs of flat steel. Optionally, even spiral springs made of round wire can be calculated. Characteristic curve (torque-torsion diagram) and scaled drawing of the spiral spring can be displayed graphically and exported as DXF or IGES files to CAD or DTP.

Pre-dimensioning
At pre-dimensioning, only torques and stroke angle are entered. FED9+ then roughly calculates the dimensions of an appropriate spiral spring.

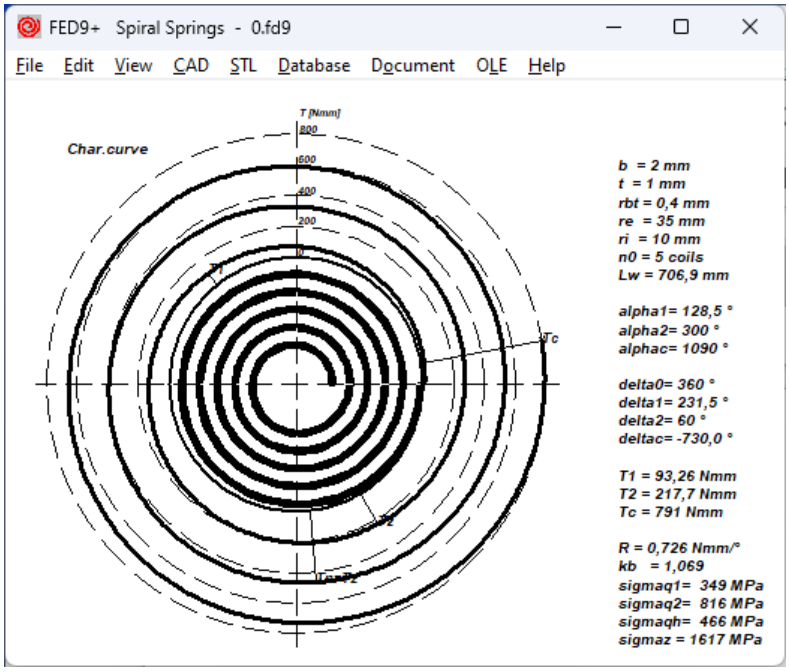
Dimensioning
At dimensioning, FED9+ calculates an appropriate spiral spring from spring torque, stroke angle, interior and exterior coil diameter and working temperature.

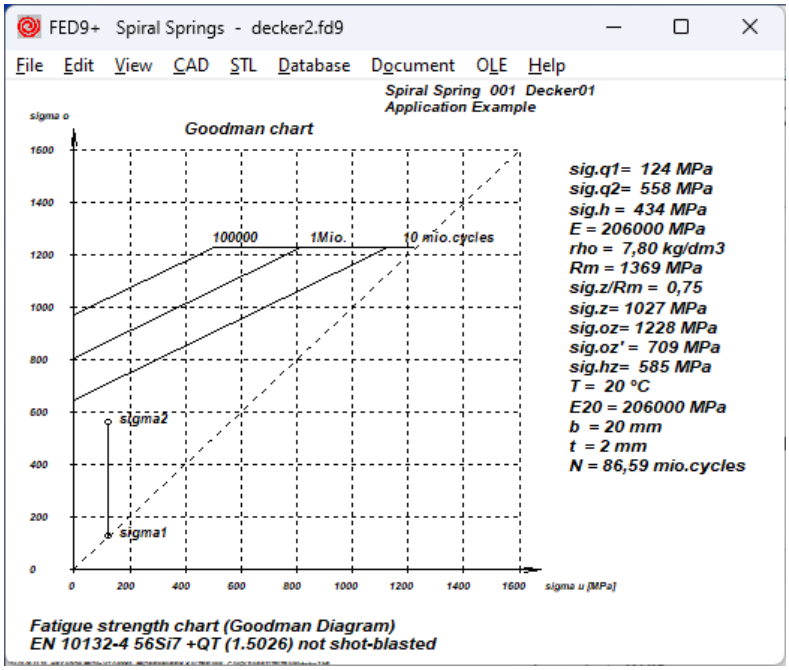
Re-calculation
To check an existing spiral spring, enter its dimensions and spring angle. FED9+ calculates the torque and bending stress for any spring angle.

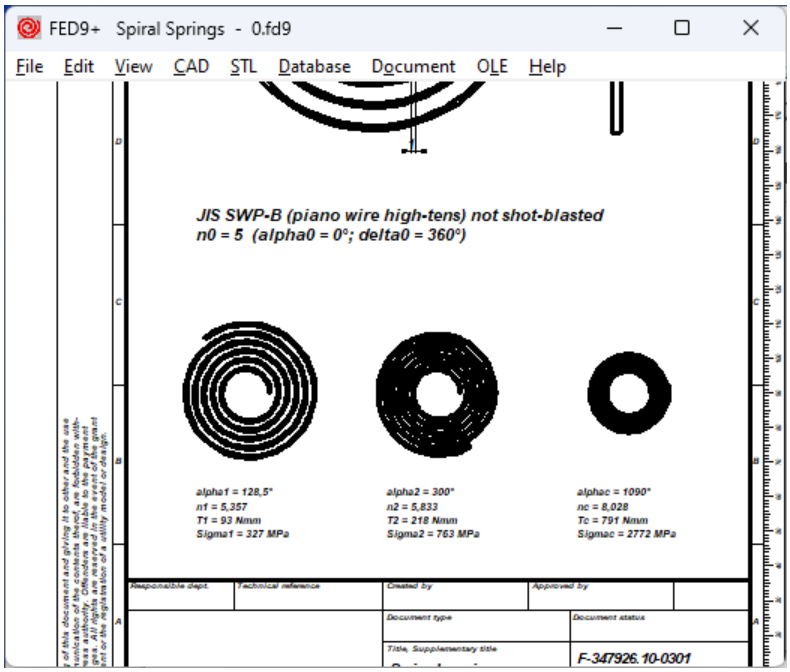
Printout
The result printout incudes all input and result data. The excerpt printout shows the most important spring data, abbreviated, on one page. Output on each Windows printer (or fax, pdf, tif etc.). There is also a feature for output of a HTML document for Intranet/Internet. And you can directly run MS Excel with FED9 calculation results in a worksheet.

Units
FED9+ can be switched between metric units (mm, N, MPa) and imperial units (inch, lbf, psi).

Spring Drawing
FED9+ generates schematic spiral spring drawings which can be exported to CAD as DXF or IGES file.







Diagrams
Spring characteristic curves (linear and polar) and diagrams of tensile strength and bending stress dependent on the material thickness are shown on screen. The diagrams can be printed or exported to CAD or DTP.

Goodman Diagram
The operating zone of the selected material for the calculated spiral spring is shown in the fatigue strength diagram. You can see 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.

Spring Energy
Spring energy is calculated and can be displayed as diagram.

Quick View
Quick Views show most important spring data together with drawings and diagrams altogether on one screen, or one print page, or export to CAD as DXF or IGES file.

Production drawing
FED9+ creates a production drawing with dimensions of the defined spiral spring in an ISO 7200 drawing header.

Material Data Base
The characteristic data of the most important spring materials (tensile strength, perm. shearing stress in relation to bar diameter, shearing modulus, E-modulus, density) is taken by FED9 from the integrated data base. The DBF file can be edited and appended by the user.

Help System
You can display a help window for each input value. There are also auxiliary pictures for each symbol used, and each calculation formula. FED9+ displays warnings when values are exceeded. For each error message you can display a more detailed description of the error and a remedy suggestion.

Hard- and Software Requirements
FED9+ is available as 32-bit app or as 64-bit app for Windows 11 / Windows 10 / Windows 7.

Scope of Delivery
The FED9+ program incl. sample data, auxiliary images, help text, user manual (pdf), input forms, non-expiring perpetual license.

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.