F E D 5

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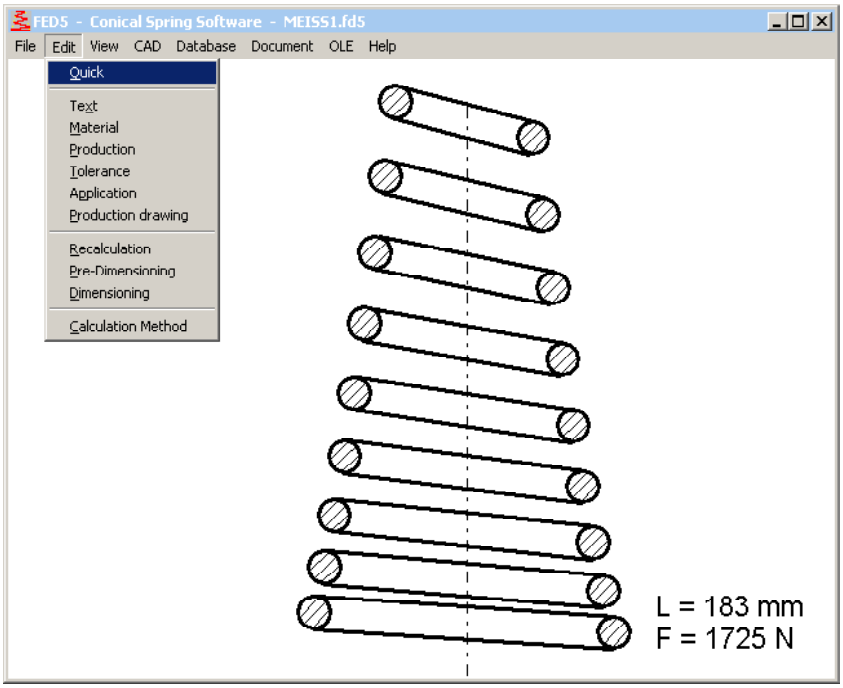
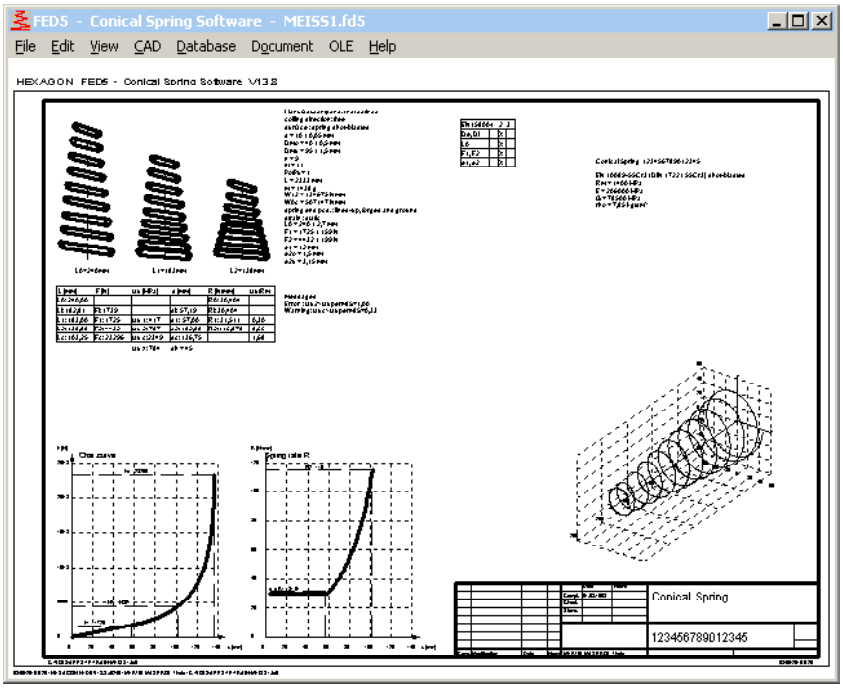
Software for Calculation of
Conical Compression Springs
for Windows





Conical Spring Calculation
FED5 software calculates conical helical compression springs of round wire.

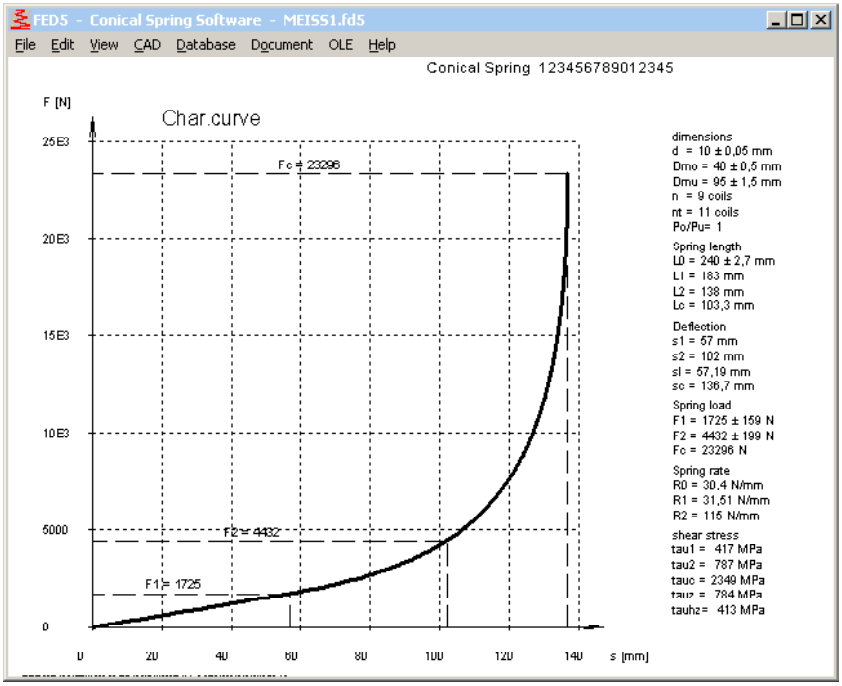
Dimensioning
By input of two spring loads and deflections you can calculate dimensions of a conical spring. FED5 offers two options:
1. stroke (F1, F2, L1, L2) lies within the linear zone of the load-deflection diagram
2. spring load F1 lies in the linear zone and spring load F2 lies in the progressive zone of the spring curve (load-deflection diagram).
Block load Fc, wire diameter d and minor coil diameter can be entered, or suggested by FED5 via "<" button.

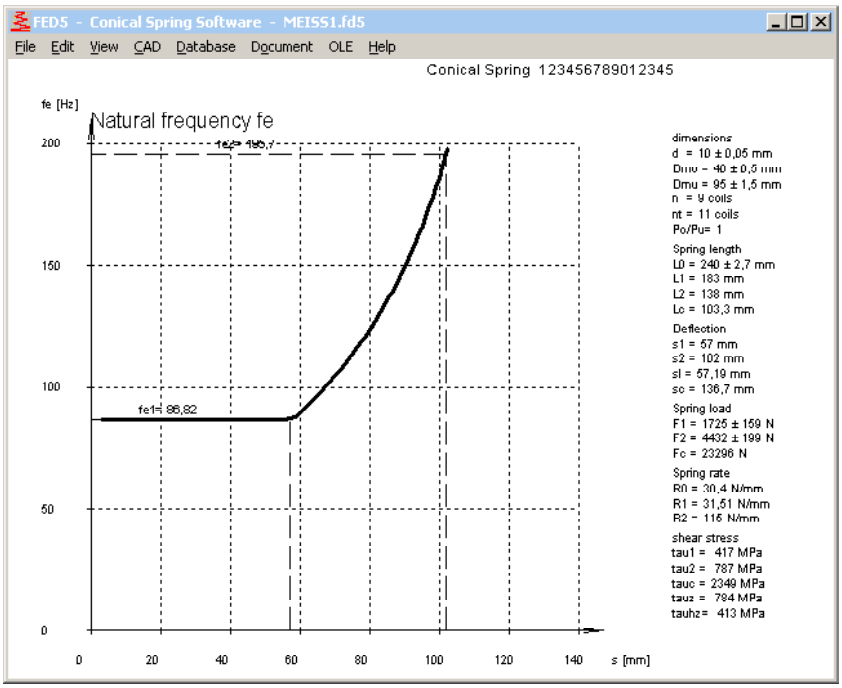
Recalculation
FED5 calculates all required spring forces, spring deflection, spring rates, spring energy, stresses, wire length and weight when you input wire diameter, coil diameters, spring length and number of coils. Coil pitch can be constant or increasing or decreasing, defined by Po/Pu.

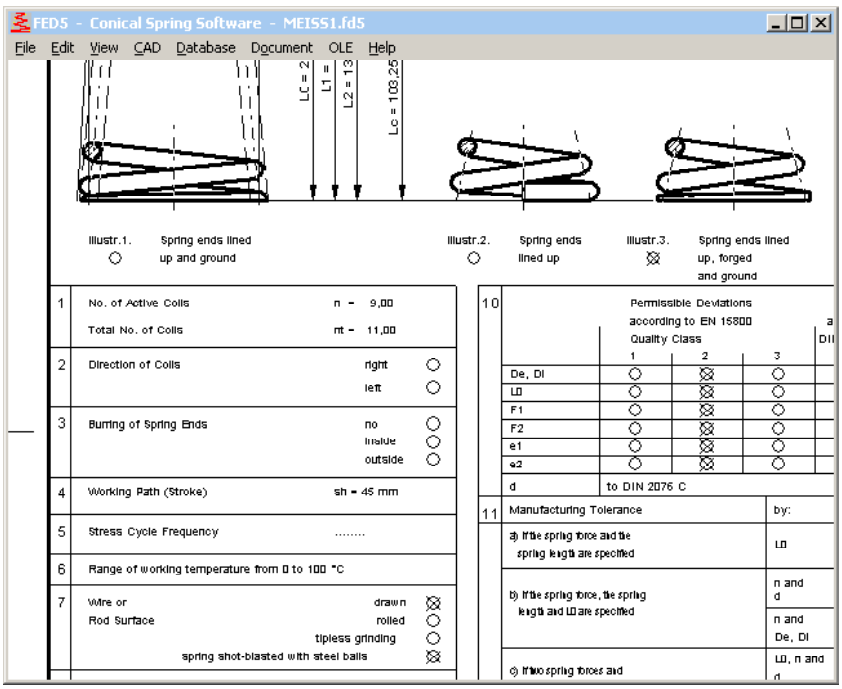
Material Database
The software obtains the values for the most important spring materials from the integrated material database (tensile strength, admissable shearing stress, shearing modulus, modulus of elasticity, density), this saves you from searching in tables and reading out the characteristic values.

Tolerances
FED5 also calculates the tolerances for the wire diameter d in accordance with EN 10218, EN 10270 and DIN 2077, and for Dm, L0, F1, F2 in accordance with EN 15800 and 2096.

Spring Drawing
2D Cross-section drawings and 3D helical center line of the conical compression spring in any clamping length can be graphically displayed and exported to CAD via DXF and IGES files.







Diagrams

FED5 allows you to display the spring characteristic curve, spring rate, and spring work on screen. Screen graphic can be printed or exported to CAD or DTP via DXF or IGES interface.

Characteristic Spring Curve

The load-deflection curve of a conical compression spring starts linear and becomes progressive at the point where the coils begin to touch.

Spring Rate

The spring rate is constant up to the point where the coils begin to touch. From this point on the spring becomes increasingly harder.

Natural Frequency

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

Spring Energy

Spring energy is calculated from the integral of the load-deflection curve.

Stress Curve

Shearing stress can be shown as diagram along spring length, or as function of spring deflection s.

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 safety(>10 million) as well as for 1 million and 100,000 load cycles are shown.

Quick View

Various Quick View screens show drawings, diagrams and tables with spring data altogether on one screen.

Production Drawing

FED5 generates a complete production drawing with ISO 7200 header which can then be exported to CAD, or directly be printed.

Export Formats

DXF, IGES, HTML, TXT, DBF, Excel, FD5.

System Requirements

FED5 is available as 32-bit app or as 64-bit app for Windows 7 / Windows 8 / Windows 10.

Scope of Delivery

FED5 program with example applications and help images, user manual (pdf), non-expiring 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.