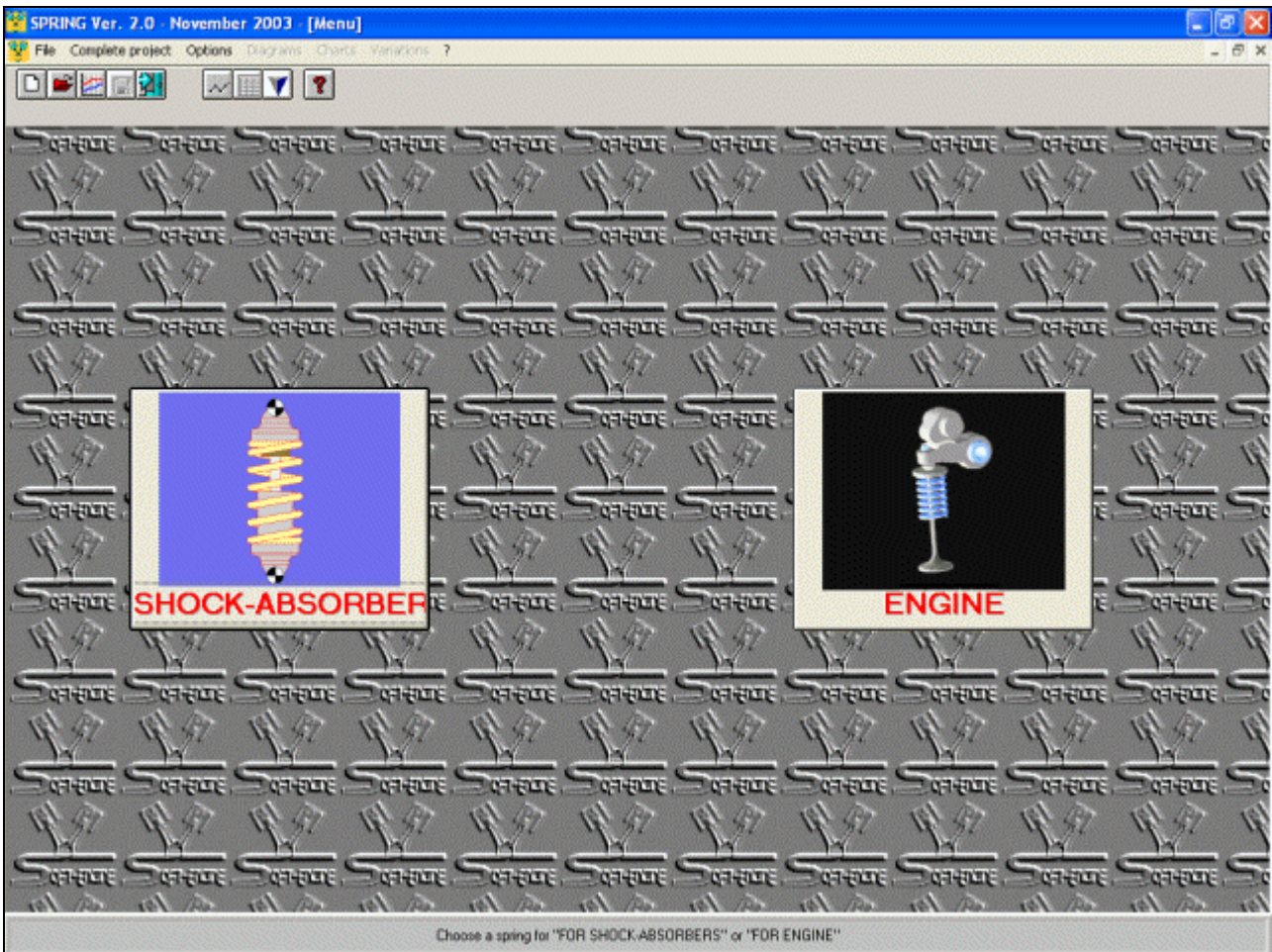


Soft-Engine - Software Spring 2.0

Main features

SPRING 2.0 is a very professional **software** by **Soft-Engine**, WINDOWS[®] environment, having a friendly graphic interface.

This software is about the project and analysis both **shock-absorbers** and **valves springs**. Obviously, for valve springs it's possible to choice **single spring** or **double spring** computing.

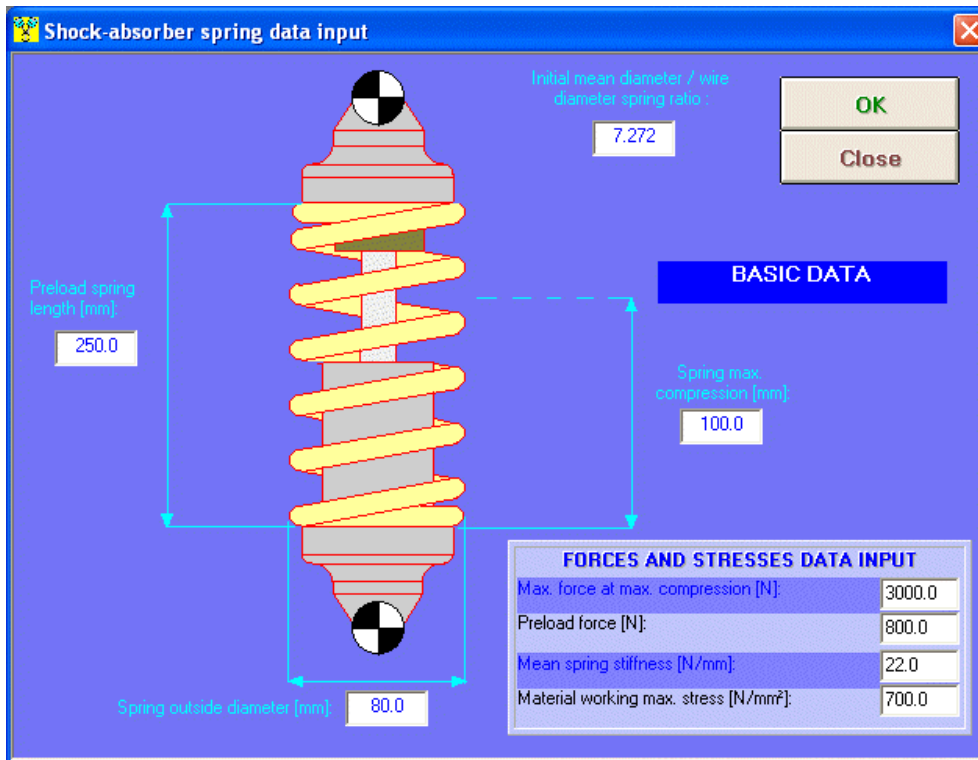


The main window

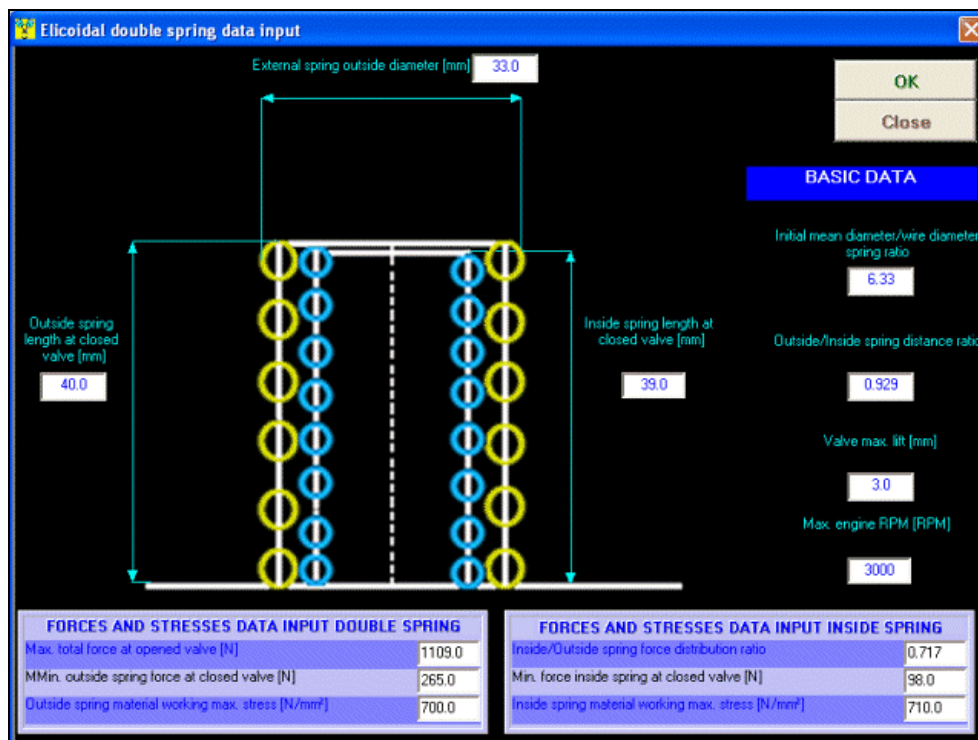
Data input

Typically, software data input are:

- ☞ **Free spring length**
 - ☞ **Max. compression force**
 - ☞ **Pre-loaded spring force** (shock-absorber)
 - ☞ **Stress** (closed valve, for engine valves)
 - ☞ **Stress** (of work material, for shock-absorbers).
-



Data input window (shock-absorbers spring)



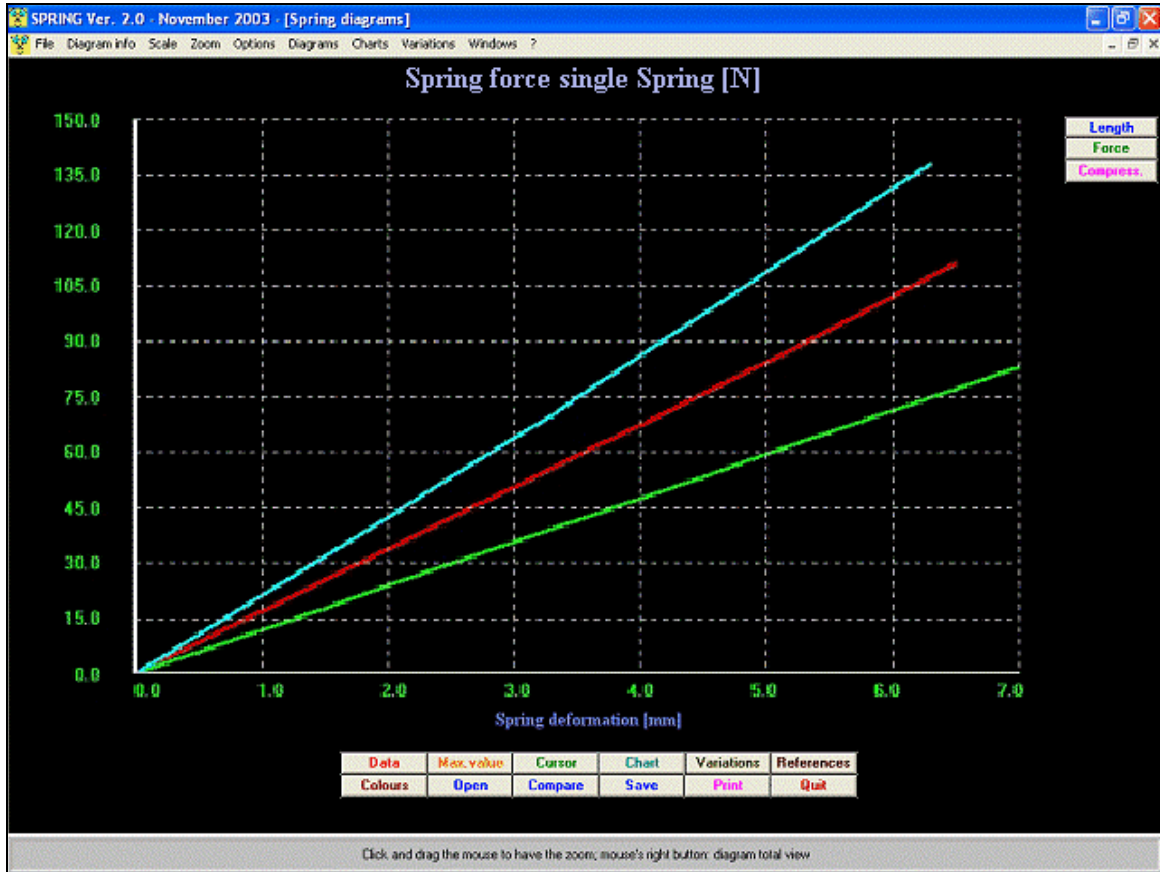
Data input window (engine spring)

Results

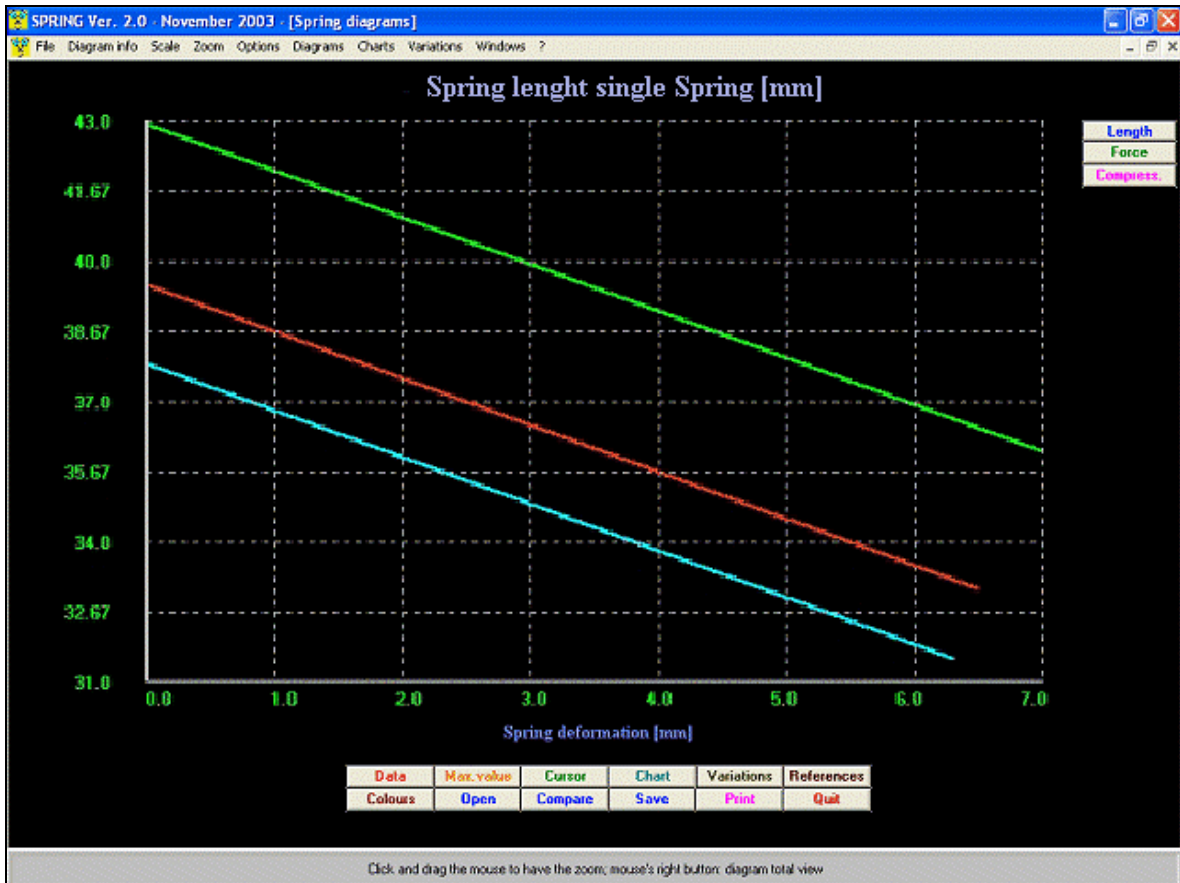
Software give some diagrams and charts about these results:

- ☞ Spring lenght
- ☞ Spring force
- ☞ Valve lift (for engine springs)
- ☞ Spring compression (For shock absorbers).

Soft-Engine engine simulation software – software “Spring”



Single spring force diagram



Single spring length diagram

Results analysis

Suitable query reports show some interest data, like **block forces and stresses**, **Whal factor**, **number of coils** or **harmonics of excitation**. You can vary input data in these query reports to study how projected spring change its features (option: variations). The input data modifications can be saved in another "data configuration", so you can compare the results about different swet of data, corresponding to different springs.

SPRING 2.0 has got a powerful form for diagram visualization. Options are:

- ☞ **diagram cursor** to read all diagram value step by step;
- ☞ **max values** visualization
- ☞ **zoom**
- ☞ **printings**
- ☞ all software options are available by this form
- ☞ diagram and backgrounds management
- ☞ X and Y axis management

Finally, this software allows a complete save-open file management, and a **link** with the most recent versions of software [SUSPENSION](#) and [CAMS](#).

DATA INPUT		Configuration: Basic data	
BASIC DATA			
Outside/Inside spring distance ratio:		0.929	
Valve max. lift [mm]:		3.0	
Max. engine RPM [RPM]:		3000	
Max. total force at opened valve [N]:		1109.0	
Inside/Outside spring force distribution ratio:		0.717	
OUTSIDE SPRING			
External spring outside diameter [mm]:		33.0	
Initial mean diameter/wire diameter spring ratio [mm]:		6.33	
Outside spring length at closed valve [mm]:		40.0	
MMin. outside spring force at closed valve:		265.0	
Outside spring material working max. stress [N/mm ²]:		700.0	
INSIDE SPRING			
Inside spring length at closed valve [mm]:		39.0	
Min. force inside spring at closed valve [N]:		98.0	
Inside spring material working max. stress [N/mm ²]:		710.0	
OUTS. SPRING DIMENSIONS AND FEATURES			
Spring mean diameter [mm]:		28.32	
Spring wire diameter [mm]:		4.68	
Mean diameter / wire diameter spring final ratio:		6.053	
Free length [mm]:		41.32	
Length at opened valve [mm]:		37.0	
Block length [mm]:		12.87	
Used turns number:		1.0	
Total turns number:		2.75	
Distance between turns [mm]:		24.13	
Max. force at opened valve [N]		795.15	
Block force [N]:		5284.46	
Stress at closed valve [N/mm ²]:		233.27	
Stress at opened valve [N/mm ²]:		699.93	
Block stress [N/mm ²]:		4651.62	
Mean spring flexibility [mm/N]:		0.0057	
Mean spring stiffness [N/mm]:		176.72	
Spring's Wahl factors:		1.25	
BASIC DATA RESULTS			
FMin/FMax spring ratio:		0.333	
Spring frequency obscollation [Cycles/m]:		127160.2	
Harmonics excitation spring:		40.0	
Spring frequency / cams shaft frequency ratio:		84.773	

Buttons: Watch, Basic data restore, New configuration, Print, Close, Inside spring

Results query chart

Soft-Engine engine simulation software – software “Spring”

Versions and costs

Version	Cost
Spring 2.0 W	€ 120.00

PC minimum configuration

Feature	Description
Processor:	Any personal computer IBM compatible.
System:	Windows ME, NT, Xp, Vista, Seven, Eight, Ten - 32 or 64 bit systems.
Memory RAM and Hard Disk:	At least 512 MB RAM and 2 GB free in the hard disk (for best Windows performances).
CDrom or Dvdrom device:	Speed at least 52X.
Graphic card:	VGA, SVGA and compatible cards, set at least 32 bit, Min. resolution: 1024x768.
Miscellaneous:	Keyboard, mouse, at least 1 USB port free (to connect the printer).
Printer:	Any ink-jet printer. Total compatibility with laser printers.
Total compatibility with notebooks and cases minitower PC.	