W S T 1

Material Database

for Windows

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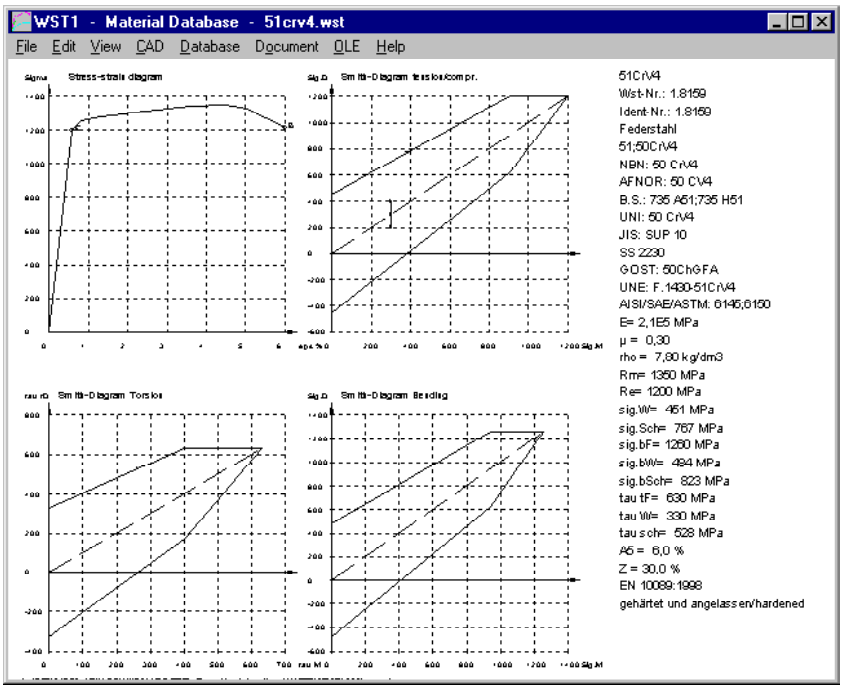
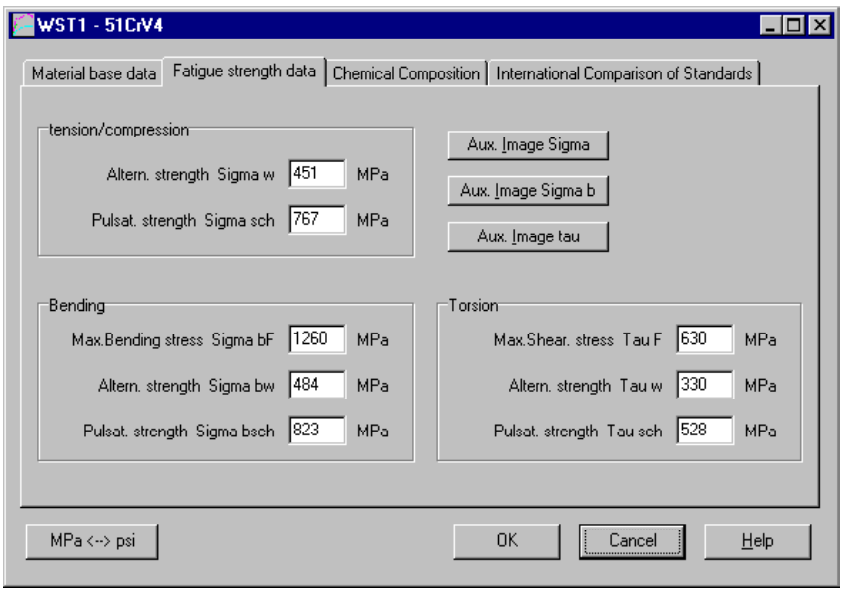




WST1 Applications

WST1 provides mechanical properties, tensile strength and yield point, endurance limits, alloy components, international designations and utilization data for steels and non-iron metals. WST1 creates a stress-strain diagram as well as fatigue stress diagrams for tension/pressure, bending and torsion.
The database records can easily be modifed and extended. Any number of new materials can be added. Deletion of unrequired data records so that the material selection reflects only those used is also possible.

Data Base

The incorporated material data base contains 950 steel and non-iron metals. Fatigue strength data are available for about 300 of these materials. WST1 uses the DBF format for the data base. This provides an interface with other programs. WST1 is an open system, the material data can be used with MS-Excel or any data base program that supports dbf tables.

International Standards Comparisation Table

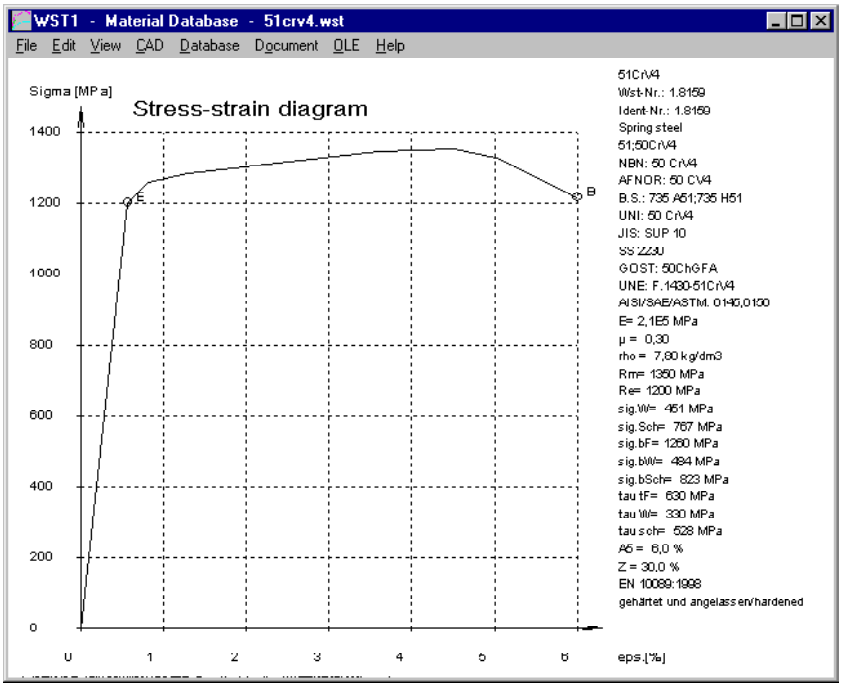
WST1 lists equivalent materials according to international standards EN 10025, EN 10027 (Europe), DIN (Germany), NBN (Belgium), AFNOR (France), BS (Great Britain), UNI (Italy), JIS (Japan), SS and UNE (Sweden), GOST (Russia), AISI (USA).

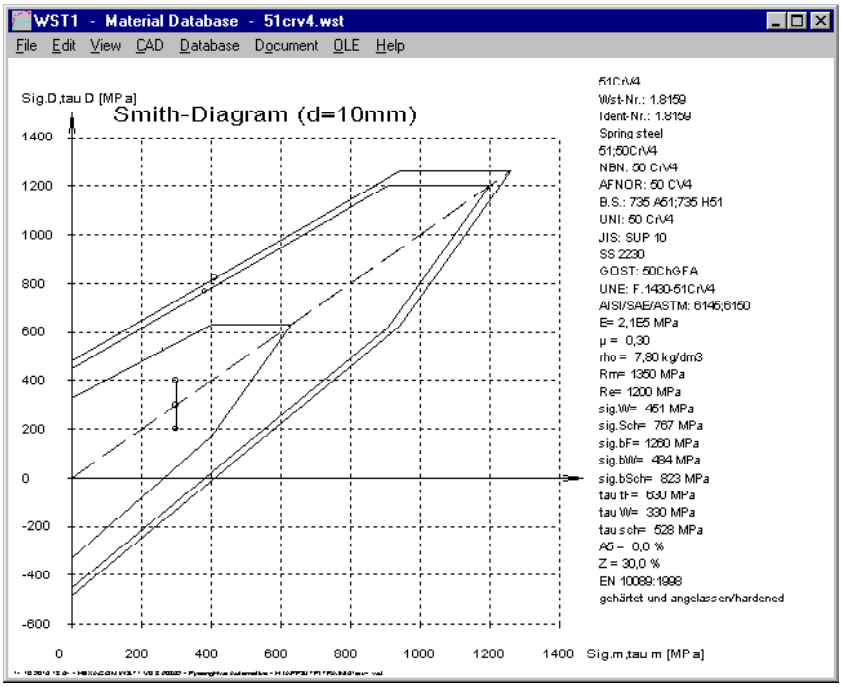
Text Printout

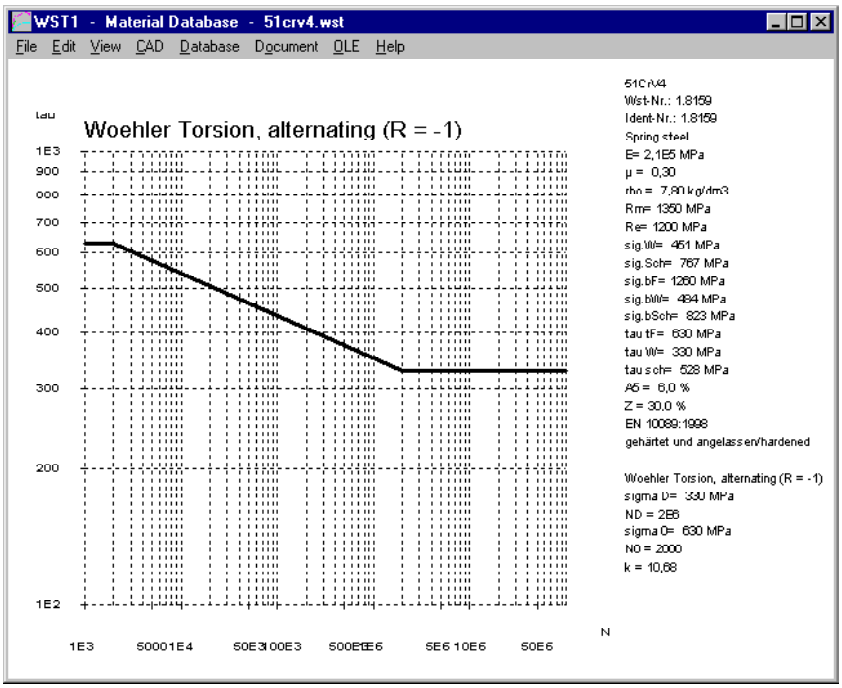
The material properties (E-module, shear module, Poisson ratio, density, tensile strength, yield point, fatigue stress values, alloy components, international designations, info texts) can be output as a list to screen or printer, or saved as TXT or HTML file.

Gaphic Printout

Graphics and diagrams can be printed on any Windows printer, or exported to CAD via DXF or IGES file.







Stress-strain Diagram
WST1 creates a tension-elongation diagram in relation to material type, tensile strength, yield point or Rp0,2-limit, elasticity modulus and elongation after fracture.

Smith and Haigh Diagram
For dynamic load a Smith diagram or Haigh diagram is helpful in order to check fatigue strength safety for mean stress and stress amplitude given by application. WST1 draws Smith diagrams and Haigh diagrams for tension/pressure, bending and torsion. The parameters (permissible stress, alternating strength and pulsating strength) are taken from the data base. Fatigue stress diagrams can also be created for newly entered materials.

Goodman Diagram
Goodman diagram looks similar as Smith diagram, but used for static and pulsating stress (tension) only, not for alternating stress (tension-pressure).

Woehler Curve
You can enter the load cycle edge positions (static to finite-life fatigue and finite-life fatigue to infinite-life fatigue strength) and WST1 draws the Woehler diagram.

Size factor
Tensile strength and yield point as function of material diameter (material thickness) can be shown as diagram.

Quick View
Quick View shows the stress-strain diagram and Smith diagrams along with material properties on one page. Quick3 View additionally shows Goodman diagram, Haigh diagram and Woehler curve, altogether on one screen.

CAD Interface
Diagrams can be printed or exported to CAD via DXF and IGES files.

Units
WST1 can be switched between metric units (mm, MPa) and imperial units (inch, psi).

HEXAGON Help System
WST1 provides help text and help images. If error messages appear, you can get description and help.

System Requirements
WST1 is available as 32-bit app or as 64-bit app for Windows 7, 8, Windows 10.

Scope of Delivery
WST1 Software with user manual (pdf), non-expiring license for unlimited time use with update rights.

Guarantee
HEXAGON gives a 24 month guarantee on full functionality of the software.
HEXAGON Software is continuously improved and updated. Registered users are regularly kept informed of updates and new editions.